WING INFRASTRUCTURE DEVELOPMENT OUTLOOK (WINDO)
Environmental Assessment

Nellis Air Force Base

December 2005

ACRONYMS AND ABBREVIATIONS

99 ABW	99th Air Base Wing
ACC	Air Combat Command
ACHP	Advisory Council for Historic Preservation
ACM	Asbestos Containing Material
AFB	Air Force Base
AFI	Air Force Instruction
AFOSH	Air Force Office of Safety and Health
afy	Acre Feet Per Year
AICUZ	Air Installation Compatible Use Zone
APZ	Accident Potential Zone
BAQ	Bureau of Air Quality
BLM	Bureau of Land Management
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAT	Citizens Area Transit
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act
CZ	Clear Zone
dB	Decibel
dBA	A-Weighted Decibel
DNL	Day-Night Average A-Weighted Sound Level
DNWR	Desert National Wildlife Range
DoD	Department of Defense
DOE	Department of Energy
EA	Environmental Assessment
ECR	Electronic Combat Range
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
EOD	Explosive Ordnance Disposal
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ExpeRT	Expeditionary Readiness Training
FONSI	Finding of No Significant Impact
gpd	Gallons Per Day
gpy	Gallons Per Year
HTTC	High-Technology Test and Training Complex
I-15	Interstate 15
IICEP	Interagency and Intergovernmental Coordination of Environmental Planning
kV	Kilovolt
LBP	Lead Based Paint
LF	Linear Feet
MLWA	Military Land Withdrawal Act
MOUT	Military Operation in Urban Terrain
MSA	Munitions Storage Area
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NDEP	Nevada Department of Environmental Protection
NEPA	National Environmental Quality Act
NHPA	National Historic Preservation Act
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NTS	Nevada Test Site
NTTR	Nevada Test and Training Range
NV	Nevada
O_3	Ozone
Pb	Lead
PM_{10}	Particulate Matter Less than 10 Microns
$PM_{2.5}$	Particulate Matter Less than 2.5 Microns
PSD	Prevention of Significant Deterioration
RED HORSE	Rapid Engineer Deployable, Heavy Operations Repair Squadron Engineer
RF	Radio Frequency
SDCC	Southern Desert Correctional Center
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxide
TPECR	Tolicha Peak Electronic Combat Range
TTR	Tonopah Test Range
UAV	Unmanned Aerial Vehicle
UFC	Unified Facilities Criteria
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compounds
WINDO	Wing Infrastructure and Development Outlook
WSA	Weapons Storage Area

DRAFT
FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF PROPOSED ACTION

Nellis Air Force Base (AFB) Wing Infrastructure and Development Outlook (WINDO).

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Nellis AFB proposes to implement the full WINDO program infrastructure improvements for 2005 to 2006 that include repair, maintenance, installation, renovation, construction, and demolition at Nellis AFB, Nevada Test and Training Range (NTTR) and associated facilities, Creech AFB (formerly Indian Springs Air Force Auxiliary Field), and Tonopah Test Range (TTR). This WINDO program includes projects identified as necessary for Nellis AFB to achieve its myriad test, training, and evaluation missions, both now and into the future. As such, the proposed action comprises the preferred alternative as defined under 40 Code of Federal Regulations (CFR) 1502.14(e).

By taking a comprehensive WINDO approach to planning and implementing the infrastructure improvements over 2 years (later part of 2005 to 2006), Nellis AFB would ensure that these goals are not only achieved, but also maximized. The WINDO environment impact analysis process (EIAP) will be revisited in 2008 to make adjustments to the planning process based on any changes in mission requirements or identified gaps in capabilities. As necessary, these adjustments will be evaluated under EIAP and addressed at that time.

The proposed action consists of implementing up to 631 WINDO projects in 11 categories at Nellis AFB, Creech AFB, NTTR, and TTR. Most (554) consist of minor improvements, repairs, and maintenance projects that represent routine activities as classified under 32 CFR Part 989, *Air Force EIAP*, and result in negligible to no effect on the environment. However, 77 proposed projects would involve new construction, expansion, or demolition of facilities and infrastructure. Nellis AFB would support most (45) of these projects, ranging from construction of a shopette to construction of a rappel tower. All of these proposed projects would occur within functionally compatible areas at Nellis AFB, Creech AFB, NTTR, and TTR. Given their functional relationships with existing facilities, most WINDO projects would likely be sited on previously used and/or disturbed land; occur within areas similarly zoned for such uses; and avoid important cultural resources, sensitive habitat, and environmental restoration program (ERP) sites.

A total of 16 projects are proposed for Creech AFB, including construction of a parking lot and an administration facility. These projects would be built on previously disturbed land and within areas zoned for such use (i.e., industrial, administrative). On NTTR, the proposed action would implement four construction projects dispersed over four locations (refer to Table 2-2). These projects would include

construction of a fence and a shed. At TTR, construction of a dining hall and fire station would be accompanied by demolition of 10 buildings.

Under the no-action alternative, Nellis AFB would maintain their existing facilities and would not undertake infrastructure improvements as proposed. In general, the no-action alternative would require that Nellis AFB continue to operate under inefficient, unproductive conditions that possibly result in a less safe environment. Under the no-action alternative, these deficiencies would continue to impair Nellis AFB's ability to successfully conduct their mission and to maintain their mission of testing and training. Should the no-action alternative be selected, Nellis AFB and the 99th Air Base Wing could not adequately meet future mission requirements or changes due to deteriorating infrastructure and would not meet its WINDO development goals.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This EA provides an analysis of the potential environmental consequences resulting from implementation of the proposed action and no-action alternative. Ten resource categories were analyzed to identify potential impacts: air quality; noise; land use; socioeconomics; transportation, soils and water; biological; cultural; and safety. According to the analysis in this EA, implementation of the proposed action or no-action alternative would not result in significant environmental impacts in any resource category. Implementing the proposed action would not significantly affect existing conditions at Nellis AFB, Creech AFB, NTTR, or TTR. The following summarizes and highlights the results of the analysis by resource category.

Air Quality. There would be no perceptible change to air quality under the proposed action. Emissions during the construction period would increase; however, they would be temporary in nature and would end when construction is complete. Because Nellis AFB is located in a nonattainment area for three out of the five criteria pollutants (particulate matter [PM_{10}], carbon monoxide [CO], and 8-hour ozone [VOCs]), emissions from demolition and construction projects at the base will be cumulatively measured to ensure that no criteria pollutant *de minimus* thresholds are exceeded in any given year. Fugitive dust (PM_{10}) emissions will be managed by implementation of control measures in accordance with standard construction practices. A fugitive dust permit will be required for construction projects at Nellis AFB; however, a permit is not required for construction and demolition projects at Creech AFB, NTTR, and TTR because they are in areas of attainment. In general, fugitive dust and combustive emissions would produce localized, short-term, elevated air pollutant concentrations which would not result in any long-term impacts on the air quality in Clark County (Nellis and Creech AFBs) or in Lincoln or Nye Counties in which NTTR and TTR related facilities are located.

Noise. For the proposed action, noise would predominantly result from construction/demolition activities and associated vehicle traffic. Noise from construction activity varies with the type of equipment being

operated, but use of heavy equipment occurs temporarily and infrequently throughout the daylight hours. In general, construction and demolition noise at Nellis AFB, Creech AFB, and TTR would be contained within the installation boundaries, be intermittent in nature, and of short-term duration. WINDO improvement projects within NTTR would occur at remote locations, with limited public access, and at a distance from any population concentrations. Therefore, no long-term noise impacts would result from implementation of the proposed action.

Land Use. The proposed action calls for new facilities and the demolition of older facilities, as well as numerous maintenance and repair activities. The proposed facilities would be sited to ensure compatibility with existing and proposed land uses in accordance with the Nellis AFB General Plan. In addition, the Air Force anticipates that new construction, expansion, and installation would likely occur on previously used and disturbed ground. Construction would avoid locations such as cultural resources, sensitive habitat, and environmental restoration program sites. Proposed WINDO projects at Creech AFB, NTTR, and TTR would be consistent with existing land uses and plans, and would not alter existing land uses or ownership. Therefore, no impacts to land use are anticipated.

Utilities. A slight increase in electrical use would be anticipated as a result of the overall increase in facility space; however, new facility construction would employ energy conserving equipment to the extent possible. System capacity would be adequate to meet this demand. Potable water demand is not expected to increase. Although a slight increase in wastewater flows could occur, no adverse impacts to wastewater treatment are anticipated. No significant impacts to utilities would result if the proposed action were implemented.

Socioeconomics. Construction activity on Nellis AFB, Creech AFB, NTTR, and TTR would increase and support short-term beneficial impacts to the local community (Las Vegas, Indian Springs, and Tonopah, respectively). However, given the growth and economy of the Las Vegas metropolitan area, and the minor amount of construction/demolition activities occurring at the other locations, such benefits would be minimal. Operation of the new facilities would draw from existing manpower positions and not create new jobs for any of the communities; therefore, no significant impacts are anticipated if the proposed action were implemented.

Transportation. Construction-related traffic on roads such as Nellis and Craig Boulevards around Nellis AFB and I-95 for Creech AFB, NTTR, and TTR would be short-term and temporary, with negligible affect. Construction-related traffic on Nellis and Creech AFBs could temporarily affect traffic over the course of 2 years; traffic levels at Nellis and Creech AFBs could, at times, be moderate to high during the construction/demolition period. However, dispersal of the projects around the bases would ease traffic issues. Nellis and Creech AFB roadways would be able to accommodate the anticipated traffic levels, although temporarily increased levels may create limited, congestion during peak traffic hours.

Proposed construction at NTTR and TTR would have negligible impact on transportation resources as traffic levels would remain very low. All of these locations are remote and draw minimal traffic.

Soils and Water Resources. Potential impacts to soils would be negligible from the proposed action, differing little from existing conditions at the sites. No surface waters are located near the proposed action sites. Construction and demolition sites tend to be flat, previously disturbed portions of the base, ISAFAF, NTTR, and TTR. Standard best management practices (e.g., watering, erosion control, and sediment retention measures and silt fencing) would be employed to reduce the chance of sediment transport. The chances of sedimentation into any water sources would be negligible.

The local drainage system is capable of handling surface runoff during rainstorms and the proposed WINDO locations are not located on a floodplain. The impact to groundwater recharge would be negligible given the low average annual precipitation and the lack of year-round surface waters in the proposed locations. Infiltration historically has been a minimal source of recharge. Therefore, no impacts would occur to water resources if the proposed action were implemented.

Biological Resources. Proposed projects would occur in previously developed or disturbed areas resulting in insignificant impacts to biological resources. Potential impacts to wildlife from construction noise would be short-term and not be expected to affect wildlife that are already exposed to flight activities. New road construction could adversely impact wildlife habitats through fragmentation although the impacts would not be significant. No adverse impacts to rare plant species would be expected. If during any ground disturbing activity in the NTTR, the presence of desert tortoise is observed, the Air Force would comply with the requirements of the 2003 USFWS Biological Opinion for the protection of the species. Wetlands do not exist in the affected region; therefore no impact to this resource would occur. No significant impact to biological resources would occur if the proposed action were implemented.

Cultural Resources. Under the proposed action, buildings, garages, parking lots, roads, fences, and runway shoulders would be constructed and numerous buildings demolished. There are a few National Register-eligible sites associated with the four proposed locations; however, the base intends to avoid any known National Register-eligible sites and structures. No traditional cultural properties are known to occur within the proposed locations. If an unanticipated discovery of archaeological materials is made, or if a project would affect a known National Register-eligible site or structure, procedures in accordance with 36 CFR 60 and the Nellis AFB Cultural Resource Management Plan would be implemented. These procedures would include (as appropriate) mitigation, consultation with tribal representatives, and review by the State Historic Preservation Officer and the Advisory Council for Historic Preservation prior to implementation.

Safety. None of the projects discussed within the WINDO program would have an impact on safety at Nellis AFB, Creech AFB, NTTR, or TTR. All current day-to-day operations have established safety guidelines and procedures which would continue to be observed. No incompatible projects would occur within safety zones. No adverse impact to safety would be anticipated under the proposed action.

4.0 CONCLUSION

On the basis of the findings of the Environmental Assessment, no significant impacts to human health or the natural environment would be expected from implementation of the proposed action or no-action alternative. Therefore, issuance of a Finding of No Significant Impact (FONSI) is warranted, and preparation of an Environmental Impact Statement, pursuant to the National Environmental Policy Act of 1969 (Public Law 91-190) is not required.

_____ _____

Michael R. Scott
Colonel, USAF
Vice Commander

Date

WING INFRASTRUCTURE DEVELOPMENT OUTLOOK (WINDO)
Environmental Assessment

Nellis Air Force Base

December 2005

EXECUTIVE SUMMARY

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This Environmental Assessment (EA) analyzes the potential environmental consequences resulting from Nellis Air Force Base's (AFB) proposal to implement the Wing Infrastructure and Development Outlook (WINDO) program. The WINDO program integrates the local wing commander's vision with the base general plan and various funding programs to identify infrastructure improvements (e.g., maintenance, repair, upgrades, construction, and demolition). WINDO is Air Combat Command's (ACC) initiative to improve the facility planning process. The intent of the WINDO program is to identify infrastructure improvements that are necessary over the next 2 years to support the mission of the 99th Air Base Wing (99 ABW), their associated remote facilities, and numerous tenants. This EA has been prepared by Nellis AFB in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and Air Force Instruction (AFI) 32-7061, as promulgated in Title 32 of the Code of Federal Regulations (CFR) Part 989.

PURPOSE AND NEED FOR THE ACTION

The purpose of the proposed action is to provide Nellis AFB with a program that will:

- enhance base's viability as a national and international training asset;
- utilize capacity to accommodate future growth;
- ensure total execution of resource stewardship responsibilities;
- preserve land use and airspace compatibility; and
- improve quality of life and aesthetics.

The need for the proposed action is to ensure that Air Force facility requirements are maintained and that the health and safety of military personnel and their families are ensured. Air Force Handbook 32-1084, *Facility Requirements*, defines these standards for infrastructure and facilities and each base uses these standards to outline its improvements, renovations, and construction projects through the years. Due to its size and complexity, Nellis AFB has identified over 630 infrastructure improvements over the next 2 years. As part of the WINDO program, these projects would fulfill the purpose for the action.

PROPOSED ACTION AND NO-ACTION ALTERNATIVE

Nellis AFB proposes to implement the WINDO program infrastructure improvements through 2006 that would include repair, maintenance, installation, renovation, construction, and demolition at Nellis AFB, Nevada Test and Training Range (NTTR) and associated facilities at Creech AFB, and Tonopah Test Range (TTR). This WINDO program includes projects identified as necessary for Nellis AFB to achieve its myriad test, training, and evaluation missions, both now and into the future. As such, the proposed action comprises the preferred alternative as defined under 40 Code of Federal Regulation (CFR) 1502.14(e).

By taking a comprehensive WINDO approach to planning and implementing the infrastructure improvements over the next 2 years, Nellis AFB would ensure that these goals are not only achieved, but also maximized. The WINDO environment impact analysis process will be revisited in 2008 to make adjustments to the planning process based on any changes in mission requirements or identified gaps in capabilities. As necessary, these adjustments will be environmentally evaluated and addressed at that time.

The proposed action consists of implementing over 630 WINDO projects in 11 categories at Nellis AFB, Creech AFB, NTTR, and TTR. Most (554) consist of minor improvements, repairs, and maintenance projects that represent routine activities as classified under 32 CFR Part 989, *Air Force EIAP*, and result in negligible to no effect on the environment. However, 77 proposed projects would involve new construction, expansion, or demolition of existing facilities and infrastructure. Nellis AFB would support most (45) of these projects, ranging from construction of a shopette to construction of a rappel tower. All of these proposed projects would occur within functionally compatible areas at Nellis AFB, Creech AFB, NTTR, and TTR. Given their functional relationships with existing facilities, most WINDO projects would likely be sited on previously used and/or disturbed land; occur within areas similarly zoned for such uses; and avoid important cultural resources, sensitive habitat, and environmental restoration program (ERP) sites.

A total of 16 projects are proposed for Creech AFB, including construction of a parking lot and an administration facility. These projects would be built on previously disturbed land and within areas zoned for such use (i.e., industrial, administrative). On NTTR, the proposed action would implement four construction projects dispersed over four locations. These projects would include construction of a fence and a shed. At TTR, construction of a dining hall and fire station would be accompanied by demolition of 10 buildings.

Under the no-action alternative, Nellis AFB would maintain their existing facilities and would not undertake infrastructure improvements as proposed. In general, the no-action alternative would require that Nellis AFB continue to operate under inefficient, unproductive conditions that possibly result in a less safe environment. Under the no-action alternative, these deficiencies would continue to impair Nellis AFB's ability to successfully conduct their mission and to maintain their mission of testing and training. Should the no-action alternative be selected, Nellis AFB and the 99 ABW could not adequately meet future mission requirements or changes due to deteriorating infrastructure and would not meet its WINDO development goals.

MITIGATION MEASURES

In accordance with 32 CFR 989.22, the Air Force must indicate if any mitigation measures would be needed to implement the proposed action. However, no mitigation measures would be needed to arrive at a finding of no significant impact (FONSI) if the WINDO proposed action were selected for implementation at Nellis AFB.

SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

This EA provides an analysis of the potential environmental consequences resulting from implementation of the proposed action and no-action alternative. Ten resource categories were analyzed to identify potential impacts: air quality; noise; land use; socioeconomics; transportation, soils and water; biological; cultural; and safety. According to the analysis in this EA, implementation of the proposed action or no-action alternative would not result in significant environmental impacts in any resource category. Implementing the proposed action would not significantly affect existing conditions at Nellis AFB, Creech AFB, NTTR, or TTR. The following summarizes and highlights the results of the analysis by resource category.

Air Quality. There would be no perceptible change to air quality under the proposed action. Emissions during the construction period would increase; however, they would be temporary in nature and would end when construction is complete. Because Nellis AFB is located in a nonattainment area for three out of the five criteria pollutants (particulate matter [PM_{10}], carbon monoxide [CO], and 8-hour ozone [VOCs]), emissions from demolition and construction projects at the base will be cumulatively measured to ensure that no criteria pollutant *de minimus* thresholds are exceeded in any given year. Fugitive dust (PM_{10}) emissions will be managed by implementation of control measures in accordance with standard construction practices. A fugitive dust permit will be required for construction projects at Nellis AFB; however, a permit is not required for construction and demolition projects at Creech AFB, NTTR, and TTR because they are in areas of attainment. In general, fugitive dust and combustive emissions would produce localized, short-term, elevated air pollutant concentrations which would not result in any long-term impacts on the air quality in Clark County (Nellis and Creech AFBs) or in Lincoln or Nye Counties in which NTTR and TTR related facilities are located.

Noise. For the proposed action, noise would predominantly result from construction/demolition activities and associated vehicle traffic. Noise from construction activity varies with the type of equipment being operated, but use of heavy equipment occurs temporarily and infrequently throughout the daylight hours. In general, construction and demolition noise at Nellis AFB, Creech AFB, and TTR would be contained within the installation boundaries, be intermittent in nature, and of short-term duration. WINDO improvement projects within NTTR would occur at remote locations, with limited public access, and at a

distance from any population concentrations. Therefore, no long-term noise impacts would result from implementation of the proposed action.

Land Use. The proposed action calls for new facilities and the demolition of older facilities, as well as numerous maintenance and repair activities. The proposed facilities would be sited to ensure compatibility with existing and proposed land uses in accordance with the Nellis AFB General Plan. In addition, the Air Force anticipates that new construction, expansion, and installation would likely occur on previously used and disturbed ground. Construction would avoid locations such as cultural resources, sensitive habitat, and environmental restoration program sites. Proposed WINDO projects at Creech AFB, NTTR, and TTR would be consistent with existing land uses and plans, and would not alter existing land uses or ownership. Therefore, no impacts to land use are anticipated.

Utilities. A slight increase in electrical use would be anticipated as a result of the overall increase in facility space; however, new facility construction would employ energy conserving equipment to the extent possible. System capacity would be adequate to meet this demand. Potable water demand is not expected to increase. Although a slight increase in wastewater flows could occur, no adverse impacts to wastewater treatment are anticipated. No significant impacts to utilities would result if the proposed action were implemented.

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Transportation. Construction-related traffic on roads such as Nellis and Craig Boulevards around Nellis AFB and I-95 for Creech AFB, NTTR, and TTR would be short-term and temporary, with negligible affect. Construction-related traffic on Nellis and Creech AFBs could temporarily affect traffic over the course of 2 years; traffic levels at Nellis and Creech AFBs could, at times, be moderate to high during the construction/demolition period. However, dispersal of the projects around the bases would ease traffic issues. Nellis and Creech AFB roadways would be able to accommodate the anticipated traffic levels, although temporarily increased levels may create limited, congestion during peak traffic hours.

Proposed construction at NTTR and TTR would have negligible impact on transportation resources as traffic levels would remain very low. All of these locations are remote and draw minimal traffic.

Soils and Water Resources. Potential impacts to soils would be negligible from the proposed action, differing little from existing conditions at the sites. No surface waters are located near the proposed action sites. Construction and demolition sites tend to be flat, previously disturbed portions of the base, ISAFAF, NTTR, and TTR. Standard best management practices (e.g., watering, erosion control, and sediment retention measures and silt fencing) would be employed to reduce the chance of sediment transport. The chances of sedimentation into any water sources would be negligible.

The local drainage system is capable of handling surface runoff during rainstorms and the proposed WINDO locations are not located on a floodplain. The impact to groundwater recharge would be negligible given the low average annual precipitation and the lack of year-round surface waters in the proposed locations. Infiltration historically has been a minimal source of recharge. Therefore, no impacts would occur to water resources if the proposed action were implemented.

Biological Resources. Proposed projects would occur in previously developed or disturbed areas resulting in insignificant impacts to biological resources. Potential impacts to wildlife from construction noise would be short-term and not be expected to affect wildlife that are already exposed to flight activities. New road construction could adversely impact wildlife habitats through fragmentation although the impacts would not be significant. No adverse impacts to rare plant species would be expected. If during any ground disturbing activity in the NTTR, the presence of desert tortoise is observed, the Air Force would comply with the requirements of the 2003 USFWS Biological Opinion for the protection of the species. Wetlands do not exist in the affected region; therefore no impact to this resource would occur. No significant impact to biological resources would occur if the proposed action were implemented.

Cultural Resources. Under the proposed action, buildings, garages, parking lots, roads, fences, and runway shoulders would be constructed and numerous buildings demolished. There are a few National Register-eligible sites associated with the four proposed locations; however, the base intends to avoid any known National Register-eligible sites and structures. No traditional cultural properties are known to occur within the proposed locations. If an unanticipated discovery of archaeological materials is made, or if a project would affect a known National Register-eligible site or structure, procedures in accordance with 36 CFR 60 and the Nellis AFB Cultural Resource Management Plan would be implemented. These procedures would include (as appropriate) mitigation, consultation with tribal representatives, and review by the State Historic Preservation Officer and the Advisory Council for Historic Preservation prior to implementation.

Safety. None of the projects discussed within the WINDO program would have an impact on safety at Nellis AFB, Creech AFB, NTTR, or TTR. All current day-to-day operations have established safety guidelines and procedures which would continue to be observed. No incompatible projects would occur within safety zones. No adverse impact to safety would be anticipated under the proposed action.

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CHAPTER 1

PURPOSE AND NEED FOR THE PROPOSED ACTION

CHAPTER 1
PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

Nellis Air Force Base (AFB), in Las Vegas, Nevada (NV) proposes to implement the Wing Infrastructure and Development Outlook (WINDO) program. The WINDO program integrates the local wing commander's vision with the base general plan and various funding programs to identify a suite of infrastructure improvements (e.g., maintenance, repair, upgrades, construction, and demolition). WINDO, an Air Combat Command (ACC) initiative, seeks to improve the facility planning process. The intent of the WINDO is to define infrastructure improvements required over the next 2 years to support the mission of the 99th Air Base Wing (99 ABW), their associated remote facilities, and numerous tenants.

The 99 ABW proposes to implement infrastructure improvement projects associated with their WINDO and base general plan such as: construction, maintenance, repair, modifications, and upgrades to existing facilities, new pavement installation, and demolition of facilities that are either deteriorated, obsolete, and/or in the footprint of proposed new construction. The WINDO program addresses a suite of needed infrastructure improvements at Nellis AFB and remote associated facilities (Nevada Test and Training Range [NTTR], Creech AFB [formerly Indian Springs Air Force Auxiliary Field], and Tonopah Test Range [TTR]). All components of the program fall within the Wing Commander's vision of facilities necessary to meet 99th ABW mission. To meet the goals of the program, WINDO must document the proposed projects needed over the next 2 years, provide an environmental analysis of these projects, and ensure preparedness to implement the appropriate facility improvements as funds become available.

The goals of the WINDO at Nellis AFB include:

- enhancing Nellis AFB's viability as a national and international training asset;
- utilizing installation capacity to accommodate future growth;
- ensuring total execution of resource stewardship responsibilities;
- preserving land use and airspace compatibility; and
- improving quality of life and aesthetics.

For the foreseeable future, Nellis AFB will continue to undergo changes in mission and training requirements in response to defense policies, current threats, and tactical and technological advances. These changes can occur rapidly and the base must offer the capacity to accommodate them. The WINDO program identifies the development and modifications needed to address these evolving needs. This Environmental Assessment (EA) evaluates WINDO projects proposed in the next 2 years and will serves as a baseline for environmental analysis for WINDO-related projects into the future.

In accordance with National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Sections 1500-1508), and 32 CFR Part 989, *et seq.*, Environmental Impact Analysis Process (EIAP) (formerly known as Air Force Instruction [AFI] 32-7061), the 99 ABW has prepared this EA that considers the potential consequences to the human and natural environment. The EA examines the consequences of implementing the proposed action and no-action alternative.

1.2 LOCATION OF THE PROPOSED ACTION

Nellis AFB

The base, located in the southeast corner of the state of Nevada, lies adjacent to the city of North Las Vegas (Figure 1-1). Nellis AFB is the center for ACC training and testing activities at NTTR, with the base providing logistical and organizational support for NTTR, the aircraft training, and personnel. Situated in Clark County, the base lies 5 miles northeast of the City of Las Vegas. The unincorporated town of Sunrise Manor and undeveloped portions of Clark County surround the majority of the base, although open space dominates to the northeast. Covering 13,743 acres, the base contains three major functional areas (Figure 1-2). Area I, the Main Base, is located east of U.S. Highway 93 and includes the airfield and most base functions. Northeast of the main base lies Area II, the Munitions Storage Area/Weapons Storage Area (MSA/WSA). Area III, located northwest of the Main Base, includes a number of facilities such as a hospital, storage, and housing. The areas north and east of Nellis AFB are primarily open range and mountains, with urban uses along Highway 93. Directly southwest of the base, commercial and residential land uses mixed with some industrial activities, dominate the area.

Creech AFB

Wholly contained within NTTR, Creech AFB is located near the town of Indian Springs, NV, approximately 45 miles northwest of Las Vegas, along Interstate Highway 95. Air Force facilities are found on both the north and south side of the interstate, with the majority of assets located to the north (e.g., runways; hangars; and maintenance, administrative, and operational facilities) (Figure 1-3). Creech AFB's primary mission is to provide an emergency divert airfield for military aircraft training in NTTR and support the flying operations of the 57th Wing, other Air Force units, Navy, Marine Corps and allied air forces. Creech AFB is home to the 11th, 15th, and 17th Reconnaissance Squadrons flying the M/RQ-1B Remotely Piloted Aircraft (i.e., predators) and the primary training site for the United States Air Force Thunderbirds flying F-16s. The 99th Security Forces Group, Ground Combat Training Squadron is also based at Creech AFB.

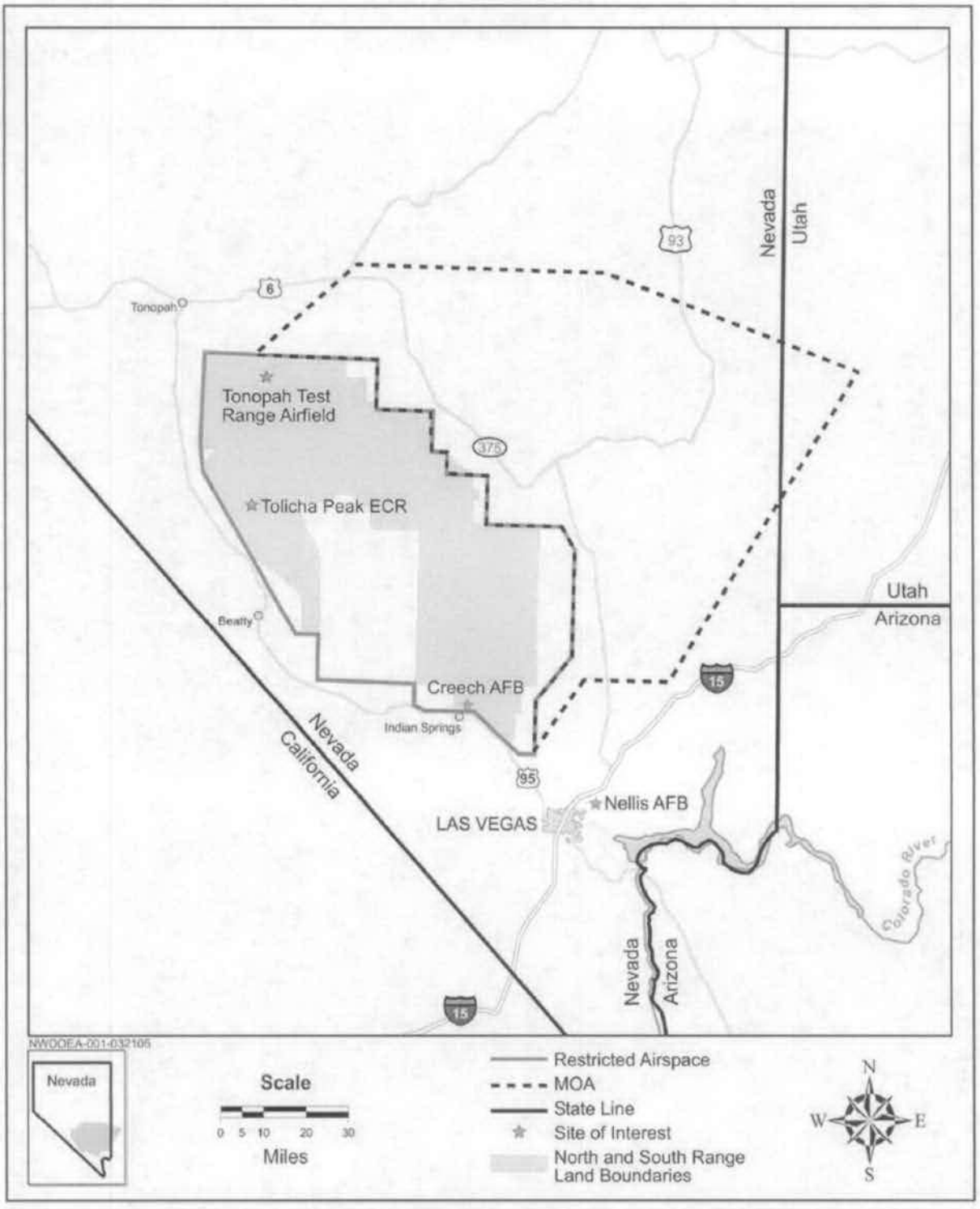


Figure 1-1 Nellis AFB WINDO Location Map

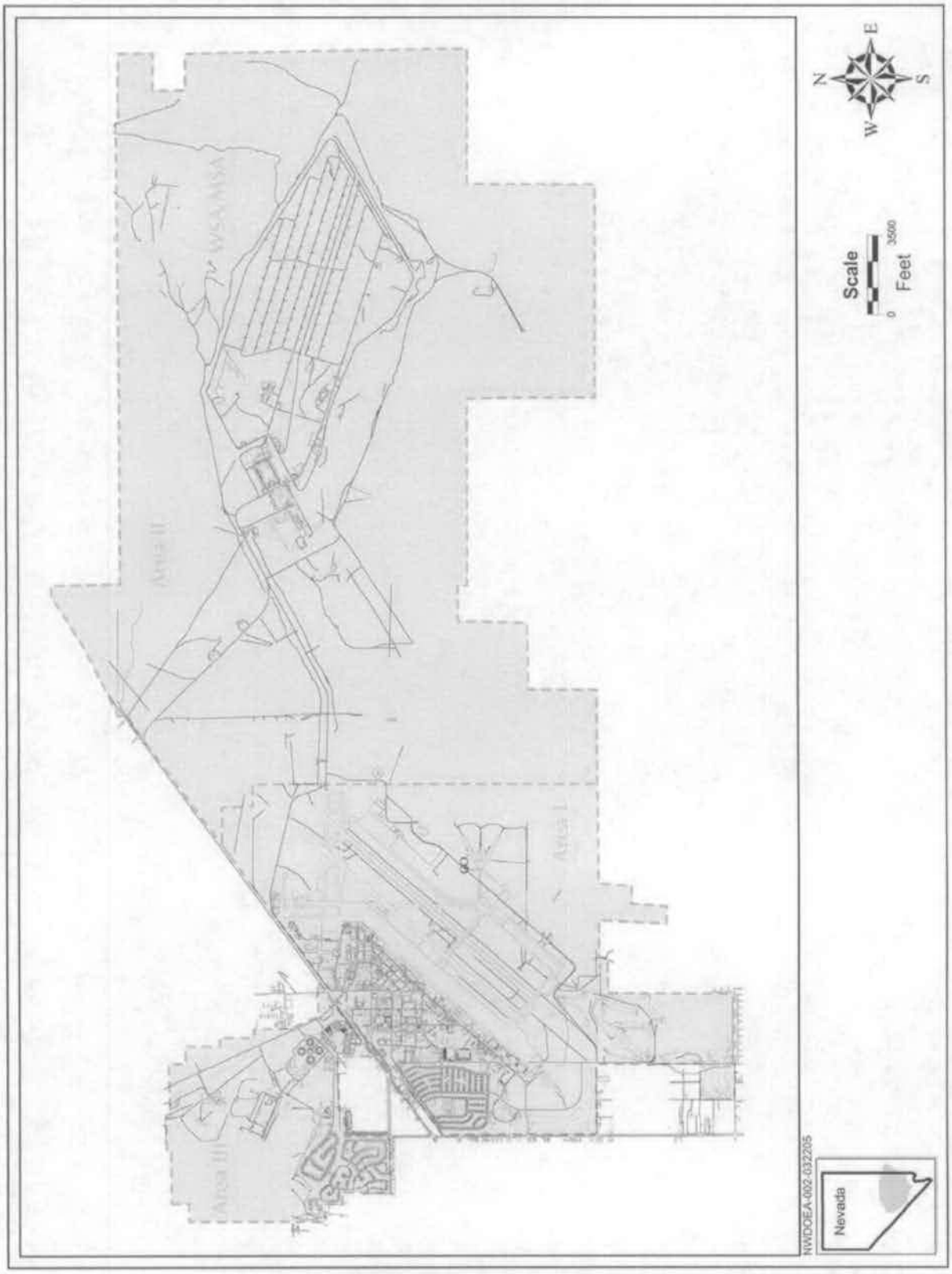


Figure 1-2 Nellis AFB Map

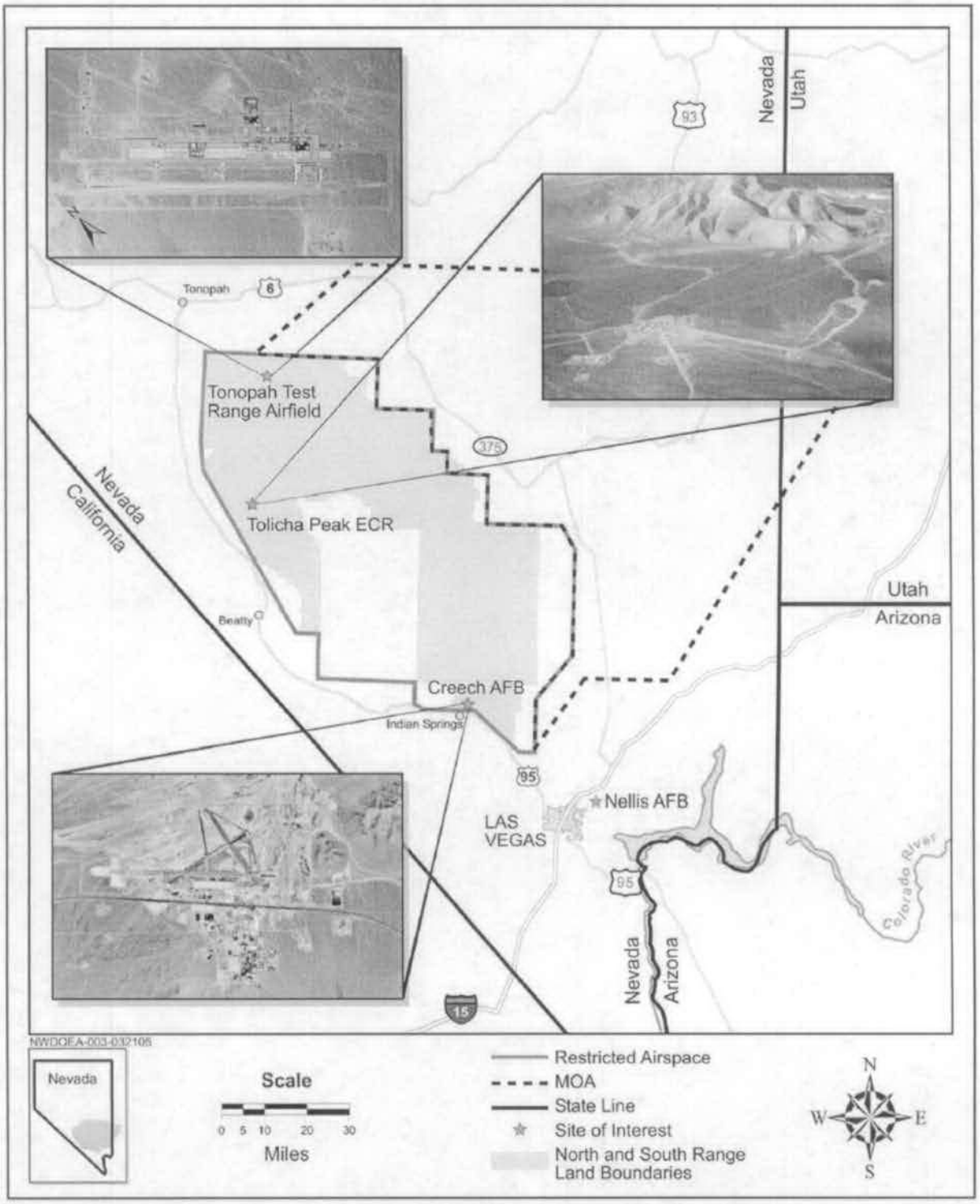


Figure 1-3 NTTR and Associated Facilities

Nevada Test and Training Range

NTTR, covering about 2.9 million acres of southern Nevada (Figure 1-3), consists of two main functional areas, the North Range and South Range. NTTR was originally established by Executive Order as the Las Vegas Bombing and Gunnery Range in 1940. By 1999, Public Law 106-65 (Military Lands Withdrawal Act [MLWA] of 1999), extended the land withdrawal until 2026 and supersedes any former land withdrawals. NTTR-associated facilities include Tolicha Peak Electronic Combat Range (TPECR) in the northern portion of the range and Point Bravo and Creech AFB in the southern portion of the range.

Tonopah Test Range

TTR is situated in the northern portion of NTTR. Its facilities are located about 40 miles southeast of Tonopah; accessed from Route 6 along both a paved and improved gravel road. TTR consists of a runway, airfield, and associated support facilities (refer to Figure 1-3). Nellis AFB manages TTR; Sandia National Laboratory (Department of Energy [DOE]) is a tenant of TTR and conducts aeronautical research and development. TTR covers about 336,000 acres within NTTR.

1.3 BACKGROUND

To fulfill its mission, Nellis AFB supports realistic combat training involving every type of aircraft in the Air Force inventory, test and evaluation programs, and the Fighter Weapons School for all Air Force fighter aircraft: A-10s, F-15C/Ds, F-15Es, F-16s, and F-22s. The organizational structure of Nellis AFB includes four major wings and several other subordinate units. Table 1-1 summarizes the major units and their functions.

Table 1-1 Nellis AFB Units

Unit	*Relevant Functions*
99th Air Base Wing	• Host wing for Nellis AFB • Oversees all day-to-day operations and functions of the base such personnel, finance, civil engineering and supply
Air Warfare Center	• Manages all advanced pilot training and integrates test and evaluation requirements
57th Wing	• Oversees all flying operations at Nellis AFB
98th Range Wing	• Operates and maintains NTTR, comprising 2.9 million acres of land and 12,000 square miles of airspace
53rd Wing	• Responsible for operational testing and evaluation of new equipment and systems proposed for use by the forces

There are over 1,700 facilities on Nellis AFB alone, and it also oversees the maintenance and improvement of infrastructure and facilities associated with: Creech AFB, which manages NTTR southern ranges; TTR, which manages NTTR northern ranges; and TPECR, whose facility simulates

realistic combat threats and provides near real-time scoring feedback to aircrews using NTTR northern ranges. Nellis AFB, its associated remote facilities, and NTTR make it the largest asset in the Air Force inventory.

1.4 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to provide Nellis AFB and its associated remote facilities (Creech AFB, NTTR, and TTR) with infrastructure improvements necessary to support, implement, and sustain the test and training mission of Nellis AFB. The defined and proposed infrastructure improvements resulted from a thorough evaluation of the various facilities across Nellis AFB, Creech AFB, NTTR, and TTR that considered their ability to:

- meet the operational, test, training, and evaluation mission;
- ensure infrastructures complies with federal, state, and local requirements;
- maintain or improve quality of life for military personnel and their families;
- accommodate existing and anticipated growth;
- continue the Environmental Restoration Program (ERP) of clean-up and underground storage tank removal; and
- improve communications connectivity between Nellis AFB and NTTR, Creech AFB, and TTR.

The need for the proposed action is to ensure that Air Force facility requirements are maintained and that the health and safety of military personnel and their families are ensured. Air Force Handbook 32-1084, *Facility Requirements*, defines these standards for infrastructure and facilities and each base uses these standards to outline its improvements, renovations, and construction projects through the years.

Due to its size and complexity, Nellis AFB has identified 631 infrastructure improvements over the next 2 years. These projects have been grouped according to the location and type of improvement. Table 1-2 provides an overview of the proposed WINDO projects. Chapter 2 and Appendix A provide additional detail on these projects.

Table 1-2 WINDO Program Infrastructure Projects: Location, Type, and Number		
Location	***Type***	***Number of Projects***
Nellis AFB	Exterior repair/installation (routine repair to parking lots, roads, buildings, etc.)	63
	Interior repair/installation (routine repair to the inside of existing facilities)	182
	Exterior maintenance (routine maintenance to existing road, facility, and infrastructure)	21
	Interior maintenance (routine maintenance to the inside of existing facilities and infrastructure)	25
	New construction (buildings, roads, mission operation facilities)	77
	Addition, expansion, and renovation (existing infrastructure)	23
	Installation (equipment to maintain operational mission)	44
	Airfield maintenance, installation, and repair	33
	Utility repair and installation	3
	Demolition of existing infrastructure (roads, buildings, pads, etc.)	5
	Environmental Restoration Projects (monitoring of clean up sites)	3
Creech AFB	Exterior repair/installation (routine repair to parking lots, roads, buildings, etc.)	21
	Interior repair/installation (routine repair to the inside of existing facilities)	33
	Exterior maintenance (routine maintenance to existing road, facility, and infrastructure)	3
	Interior maintenance (routine maintenance to the inside of existing facilities and infrastructure)	1
	New construction (buildings, roads, mission operation facilities)	17
	Addition, expansion, and renovation (existing infrastructure)	3
	Installation (equipment to maintain operational mission)	7
	Airfield maintenance, installation, and repair	17
	Utility repair and installation	4
	Demolition of existing infrastructure (roads, buildings, pads, etc.)	1
	Environmental Restoration Projects (monitoring of clean up sites)	1
NTTR	Exterior repair/installation (routine repair to parking lots, roads, buildings, etc.)	1
	Interior repair/installation (routine repair to the inside of existing facilities)	4
	New construction (buildings, roads, mission operation facilities)	4
	Installation (equipment to maintain operational mission)	2
	Airfield maintenance, installation, and repair	2
	Utility repair and installation	1
	Environmental Restoration Projects (monitoring of clean up sites)	1
TTR	Exterior repair/installation (routine repair to parking lots, roads, buildings, etc.)	8
	Interior repair/installation (routine repair to the inside of existing facilities)	1
	Exterior maintenance (routine maintenance to existing road, facility, and infrastructure)	1
	New construction (buildings, roads, mission operation facilities)	3
	Addition, expansion, and renovation (existing infrastructure)	1
	Installation (equipment to maintain operational mission)	1
	Airfield maintenance, installation, and repair	4
	Demolition of existing infrastructure (roads, buildings, pads, etc.)	10
	TOTAL NUMBER OF WINDO PROJECTS	**631**

CHAPTER 2

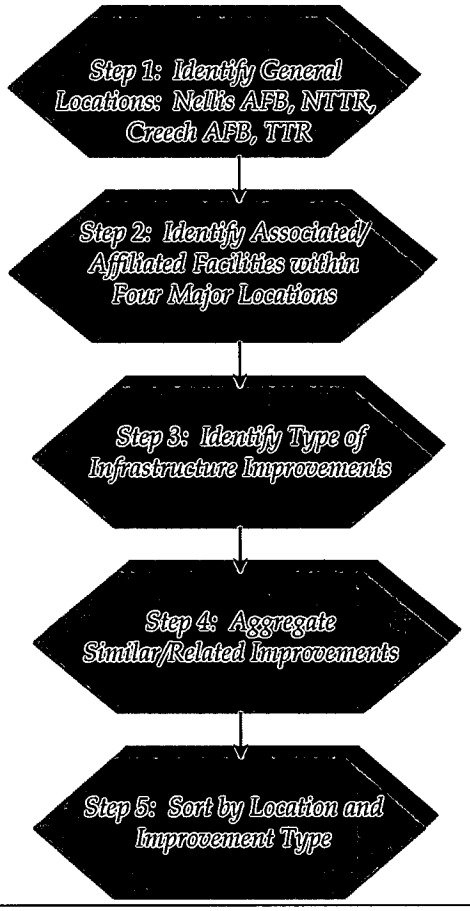
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

CHAPTER 2
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter describes the proposed action and the no-action alternative. The proposed action analyzed in this EA involves the potential implementation of up to 631 proposed WINDO program infrastructure improvements as identified by the Nellis AFB Wing Commander and ACC at facilities located at Nellis AFB, Creech AFB, NTTR, and TTR. Depending on funding and other factors, Nellis AFB may not implement all 631 projects. Nevertheless, this NEPA analysis examines the entire suite of projects as the proposed action. Not implementing the WINDO infrastructure improvements comprises the no-action alternative. Except for no action, the Air Force identified no other reasonable alternatives to the proposed action, Section 2.4 provides discussion of alternatives considered but not carried forward.

2.1 PLANNING CRITERIA AND APPROACH FOR DEFINING THE PROPOSED ACTION

Due to the size and complexity of Nellis AFB and its associated remote facilities at NTTR, Creech AFB, and TTR, this EA developed specific planning criteria and an approach to defining the proposed action. The following describes these criteria, how they were applied, the approach, and the resulting defined proposed action consisting of five interrelated steps (see below). This approach focused on clarifying and narrowing the analysis.



Nellis AFB and its associated facilities encompass approximately 3 million acres (Air Force 2003a), and include numerous subareas and specialized locations. Under the WINDO program, a potential exists for up to 631 infrastructure projects to be implemented at Nellis AFB, Creech AFB, NTTR, and TTR during the next 2 years (see Appendix A for a complete list of proposed improvement projects). Each project was assigned a prospective completion date based on needs for mission support and training requirements. These are nominal dates, and although some projects have an assigned date of 2004, they have not yet been implemented and are, therefore, analyzed as part of the proposed infrastructure improvements slated to occur in the next 2 years. To better evaluate the effects of these projects on the human and natural environment, the projects were first sorted according to their major location (Step 1) and then (Step 2) according to their affiliation with a particular major site. The locations and associated facility affiliations include:

- Nellis AFB (refer to Figure 1-2)

  Area I includes the Main Base and Nellis Terrace Housing.

  Area II, to the northeast includes the MSA/WSA, the 896th Munitions Squadron, the 555th Rapid Engineer Deployable, Heavy Operations Repair Squadron Engineer (RED HORSE) Reserve Squadron, the 820th RED HORSE Squadron, and the Nellis Federal Prison Compound.

  Area III, across Las Vegas Boulevard North, includes Manch Manor housing, the Mike O'Callaghen Federal Hospital, Armed Forces Reserve Center, and some industrial activities.
- Nevada Test and Training Range (refer to Figure 1-3)

  NTTR, comprising 2.9 million acres and consists of two functional areas, the North Range and the South Range. Division of the ranges facilitates overall management of Air Force operations and test and training opportunities on the range (Air Force 1999b). Management responsibilities include operating and maintaining range equipment, safety of personnel, material resources within the range boundaries, and the range electromagnetic environment.

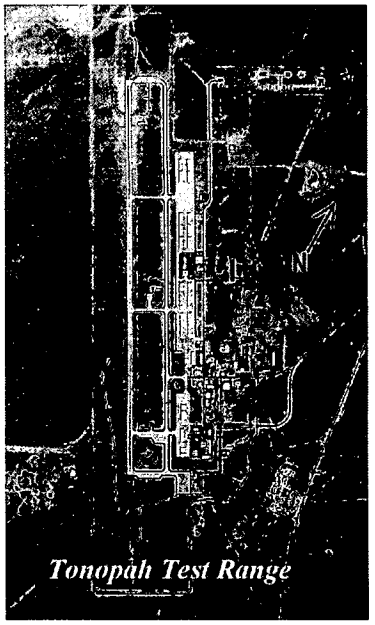
  - *North Range* encompasses about 1.8 million acres of withdrawn land. Multiple and dispersed facilities support numerous electronic combat ranges (ECRs). These ECRs provide a spectrum of high-to-low electronic threat environments and include the Tolicha Peak ECR. This facility, which lies 20 miles north of Beatty, NV, it has been specifically identified to receive improvements.

  - *South Range* comprises approximately 1.1 million acres of withdrawn land. There are five weapons-delivery areas which include manned and unmanned smaller ranges of which Point Bravo is one. This manned facility would receive infrastructure improvements and is located approximately 34 miles northwest of Las Vegas. The site contains less than a half-dozen

buildings supporting target and range management, near-real time scoring feedback for aircrews, and security services.

- Creech AFB (refer to Figure 1-3).

  Creech AFB is located approximately 45 miles northwest of Las Vegas, on Interstate Highway 95, within NTTR (Nellis AFB 2003a). Approximately 2,380 acres of land lie within its boundaries and its facilities support the Thunderbird training program, three squadrons for the Predator Unmanned Aerial Vehicle (UAV) test and training program, as well as academic and training facilities for the Air Force Special Operations Command. Numerous infrastructure upgrade projects have been identified for this installation.



- Tonopah Test Range (refer to Figure 1-3).

  TTR consists of approximately 336,665 acres of operational, maintenance, and administrative facilities. Activities on TTR include projectile firings, ground-launched rockets (both high and low altitude), air launched rockets, explosion effects tests, earth penetration tests, cruise missile flights, and many miscellaneous activities requiring a remote location for non-nuclear DOE research and development projects. As with the other locations mentioned previously, infrastructure improvements have been identified in the WINDO program.

The next step (3) in applying the planning criteria, involved categorizing the types of infrastructure improvements associated with various projects. Subsequently, the categories were aggregated into 11 types with shared or related attributes (Step 4). Table 2-1 provides the categories of infrastructure improvements, applies a designator, and presents examples of the improvement type.

With the projects defined according to location and type, the planning criteria were then applied, sorted by criteria, and grouped by classes for the over 600 projects (Step 5). Since specific details of many projects remain undetermined due to their being in the preliminary formulation and/or design phases, application of these classes provided a means to conduct the environmental analysis in a programmatic fashion. Section 2.5 (EIAP) presents the environmental approach for analyzing the potential effect of these projects across such a large geographic area.

Table 2-1 Infrastructure Improvement Identification

Improvement Type	*Definition*	*Designator*	*Examples*
Repair/Install	Exterior repair and installation	A1	Repair parking lots, manhole covers, fences, sprinkler system, as well as fuel tanks; install exterior lighting
Repair/Install	Interior repair and installation or immediately adjacent to the facility of within the facility footprint (i.e., sides of buildings, roofs)	A2	Repair interior of buildings such as electrical lines, plumbing, painting, roofs
Maintenance	Exterior routine maintenance	B1	Routine maintenance to landscaping, road/parking lot pavement, ramps, water tanks, and hangars
Maintenance	Interior routine maintenance	B2	Routine maintenance to the inside of existing facilities and infrastructure: painting, plumbing, etc.
Construction	New construction	C	Includes new construction of buildings, roads, mission operation facilities, pads, etc. Might also involve some level of demolition
Add/Expand	Addition, expansion, and renovation (existing infrastructure)	D	Add, expand, and/or renovate existing infrastructure such as a secured room within a building, move a wall, renovate a room
Equipment Install	Installation	E	Install equipment to maintain operational mission such as emergency power for wells, check valves, heating and air conditioning units, sunshades at various gates, underwing foam system, and fire hydrants
Airfield	Maintenance, installation, and repair	F	Construct revetment, paint taxi lines, install runway shoulders, extend/repair flight line, maintain airfield pavement
Utilities	Installation and repair	G	Repair and install communication, cable, sewer, and water lines
Demolish	Demolition of existing infrastructure	H	Demolish roads, aged dormitories, buildings, pads, etc., potentially not related to new construction
Environmental Restoration Projects	Monitoring and/or remediation of Environmental Restoration Project sites	I	Long-term monitoring or planned remediation of identified sites

2.2 PROPOSED ACTION

Nellis AFB proposes to implement the WINDO program of infrastructure improvements for the next 2 years that would include repair, maintenance, installation, renovation, construction, and demolition at Nellis AFB, NTTR, Creech AFB, and TTR (refer to Table 2-1). This WINDO program includes projects that the 99 ABW and the Air Force have identified as necessary for Nellis AFB to achieve its myriad test, training, and evaluation missions, both now and in the future. As such, the proposed action comprises the preferred alternative as defined under 40 CFR 1502.14(e).

The defined and proposed infrastructure improvements resulted from a thorough evaluation of the various facilities across Nellis AFB, Creech AFB, NTTR, and TTR that considered their ability to:

- meet the operational, test, training, and evaluation mission;
- ensure infrastructures complies with federal, state, and local requirements;
- maintain or improve quality of life for military personnel and their families;
- accommodate existing and anticipated growth;
- continue the Environmental Restoration Program (ERP) of clean-up and underground storage tank removal; and
- improve communications connectivity between Nellis AFB and NTTR, Creech AFB, and TTR.

In addition to this evaluation, Nellis AFB recognized the need for substantial investment in infrastructure repair, upgrades, or replacements. This need is driven by the age, past maintenance, unique climatic conditions, and the low water table. For example, Nellis AFB's water wells only supply the base with 22 percent of the water needed on an average day. With nine of the thirteen wells operational, the installation can store up to 7.5 million gallons of potable water in nine tanks. Water usage peaks to 7.0 million gallons per day in the summer. With Nellis AFB allocating only 4,000 acre-feet of water per year, conservation is a necessity. In addition to smart water conservation practices, educating Nellis AFB personnel, and planning good economical water systems, the base must develop its infrastructure and facilities in a manner cognizant of these water issues. Such a focus is an important step for advancing the WINDO vision. Besides water systems, there are sewage, electrical, storm drainage, natural gas, heating and cooling systems, aircraft fuel lines, and communication systems that require continued evaluation and improvements to keep them working and to meet Nellis AFB mission expansion.

By taking this comprehensive approach to planning and implementing the infrastructure improvements over the next 2 years, Nellis AFB would ensure that these goals are not only achieved, but also maximized. The WINDO EIAP will be revisited in 2008 to make adjustments to the planning process based on any changes in mission requirements or identified gaps in capabilities. These will be evaluated under EIAP and addressed at that time.

The proposed action consists of implementing up to 631 WINDO projects in 11 categories at Nellis AFB, Creech AFB, NTTR, and TTR (refer to Table 1-2). Most (554) consist of minor improvements, repairs, and maintenance projects that represent routine activities as classified under 32 CFR Part 989, Air Force EIAP, and result in negligible to no effect on the environment. However, 77 proposed projects would involve new construction, expansion, or demolition of facilities and infrastructure (Table 2-2). Nellis AFB would contain most (45) of these projects, ranging from construction of a shopette to construction of a rappel tower. All of these proposed projects would occur within functionally compatible areas at Nellis AFB, Creech AFB, NTTR, and TTR. Given their functional relationships with existing facilities, most WINDO projects would likely be sited on previously used and/or disturbed land; occur within areas similarly zoned for such uses; and avoid important cultural resources, sensitive habitat, and environmental restoration program (ERP) sites.

Table 2-2 Proposed WINDO Project Details

AF Project Number	*Project Name*	*Type*
Nellis AFB and associated facilities in Areas I, II, or III		
RKMF000010	CONSTRUCT PAD BLDG 10425	C
RKMF010018	CONSTRUCT PARKING LOT BLDG 61633	C
RKMF010030	CONSTRUCT CRS PAD (CMS)	C
RKMF010031	CONSTRUCT RED HORSE CHECKPOINT	C
RKMF030189	CONSTRUCT SABER COMPOUND	C
RKMF040057	CONSTRUCT ENGINE SHOP WAREHOUSE	C
RKMF040063	CONSTRUCT 555TH RED HORSE CANTONMENTS FACILITY	C
RKMF040088	CONSTRUCT 6 CTS I-FACT FACILITY	C
RKMF040095	CONSTRUCT LIVE FIRE SHOOT HOUSE	C
RKMF040100	CONSTRUCT CAOC COMPOUND	C
RKMF040104	CONST RED FLAG FACILITY, CCD	C
RKMF040111	CONSTRUCT 555 RHS AIRFIELDS FACILITY	C
RKMF040139	CONSTRUCT RAPPEL TOWER 58 RQS	C
RKMF040147	CONSTRUCT COMMUNICATIONS STORAGE FACILITY	C
RKMF040148	CONSTRUCT FUELS MAINTENANCE FACILITY	C
RKMF065001	CONSTRUCT TEMPORARY LODGING FACILITY	C
RKMF095001	CONSTRUCT RV PARK ADDITION	C
RKMF980066	CONSTRUCT ENCLOSED GARAGES BLDG 837	C
RKMF000034	CONSTRUCT CATM RANGE TOWER	C
RKMF040098	CONSTRUCT CATM TRAINING FACILITY	C
RKMF040119	CONSTRUCT BOUNDARY FENCE AREA 3	C
RKMF045003	CONSTRUCT SHOPPETTE	C
RKMF960040	CONSTRUCT HELICOPTER PARKING	C

Table 2-2 Proposed WINDO Project Details		
AF Project Number	*Project Name*	*Type*
RKMF990064	CONSTRUCT ROLLER HOCKEY FIELD	C
RKMF000019	CONSTRUCT PAVED STORAGE AREA II	C
RKMF020041	CONSTRUCT CATM RANGE FENCING	C
RKMF020052	RELOCATE LOX/LIN & HYDRAZINE PLANTS	C
RKMF030009	RELOCATE GROUND PROD STATION	C
RKMF950043	CONSTRUCT PKG AREA BLDG 2349	C
RKMF020013	CONSTRUCT FIRE STATION AREA II	C
RKMF020046	CONSTRUCT ENTRY CONTROL POINT RANGE ROAD	C
RKMF030171	CONSTRUCT SF WAREHOUSE, AREA III	C
RKMF990065	CONSTRUCT CHAPEL MEETING FAC	C
RKMF000041	CONSTRUCT REVETMENT LOLA SUPPORT FAC	F
RKMF010042	CONSTRUCT SHOULDERS RUNWAY 03L/21R	F
RKMF030054	CONSTRUCT LOLA BOMBER PAD EXPANSION	F
RKMF030056	CONSTRUCT TAXIWAY G EXTENSION-GOLF PAD	F
RKMF030055	CONSTRUCT ALTERNATE HOT CARGO PAD EXTENSION	F
RKMF040084	CONSTRUCT FLIGHTLINE FENCE	F
RKMF040173	CONSTRUCT LOLA ARMS ADDITION	F
RKMF930162	CONSTRUCT CRYOGENICS SER AREA LOLA	F
RKMF000002	CONSTRUCT COMMUNICATION FACILITY, BLDG 839	H
RKMF020040	FIREMAN TRAINING FACILITY, FAC 2185	H
RKMF040158	AREA II GUARD SHACK, BLDG 10111	H
RKMF040188	CHAFF AND FLARE FACILITY BLDG 288	H
Creech AFB		
LKTC031008	CORROSION CONTROL POL TANK	C
LKTC031024	CONSTRUCT AGE FACILITY AND YARD	C
LKTC031026	CONSTRUCT MUNITIONS MAINTENANCE ADMIN FACILITY	C
LKTC031028	CONSTRUCT MUNITIONS IGLOO	C
LKTC041009	CONSTRUCT FLIGHT KITCHEN	C
LKTC041014	CONSTRUCT TECH PAD	C
LKTC041023	CONSTRUCT HEADQUARTERS FACILITY	C
LKTC041027	CONSTRUCT EQUIPMENT REPAIR PADS, BLDG 227	C
LKTC041028	CONSTRUCT FENCING FIRE TRAINING AREA	C
LKTC046912	CONSTRUCT LOADING/OFFLOADING CONTAINMENT, FAC 648, Creech AFB	C
LKTC046913	POL TRUCK PKG CONT, FAC 653, Creech AFB, NEL 04-2	C
LKTC021002	CONSTRUCT FIRING PADS SFA	C

Table 2-2 Proposed WINDO Project Details		
AF Project Number	*Project Name*	*Type*
LKTC051007	CONSTRUCT PREDATOR SATCOM PAD Creech AFB	C
LKTC981009	CONSTRUCT STORAGE FAC 67	C
LKTC021016B	CONSTRUCT PARKING LOT AME/ACADEMICS FACILITY	C
LKTC031032	CONSTRUCT GCTS ADMIN/HQ FACILITY	C
NTTR		
RKXF998001	CONSTRUCT SOUTH RANGE WELLS	C
RKXF20057002	SI CACTUS SPRINGS SPUR	C
RKXF898005	CONSTRUCT FENCE RANGE 4807 W	C
RKXF998014	CONSTRUCT CE COVERED STORAGE TPECR	C
TTR		
WZVV053201	CONSTRUCT DINING HALL, TTR	C
WZVV053202	CONSTRUCT FIRE STATION, TTR	C
WZVW028009	DEMOLISH CIVILIAN CAMP, BLDG 723	H
WZVW028010	DEMOLISH CIVILIAN CAMP, BLDG 738	H
WZVW028011	DEMOLISH DH, AMN (DET), BLDG 740	H
WZVW028012	DEMOLISH CIVILIAN CAMP, BLDG 748	H
WZVW028013	DEMOLISH CIVILIAN CAMP, BLDG 749	H
WZVW028014	DEMOLISH CIVILIAN CAMP, BLDG 801	H
WZVW028015	DEMOLISH CIVILIAN CAMP, BLDG 803	H
WZVW028016	DEMOLISH CIVILIAN CAMP, BLDG 804	H
WZVW028017	DEMOLISH CIVILIAN CAMP, BLDG 805	H
WZVW028018	DEMOLISH CIVILIAN CAMP, BLDG 806	H

A total of 16 projects are proposed for Creech AFB, including construction of a parking lot and an administration facility. These projects would be built on previously disturbed land and within areas designed for such use (i.e., industrial, administrative). On NTTR, the proposed action would implement four construction projects dispersed over four locations (refer to Table 2-2). These projects would include construction of a fence and a shed. At TTR, construction of a dining hall and fire station would be accompanied by demolition of 10 buildings.

2.3 NO-ACTION ALTERNATIVE

As required by CEQ regulations 40 CFR Part 1502.14(d), Nellis AFB also analyzed the no-action alterative. Under the no-action alternative, Nellis AFB would maintain their existing facilities and would not improve the infrastructure as proposed. In general, the no-action alternative would require that Nellis AFB continue to operate under inefficient, unproductive conditions that possibly result in a less

safe environment. Under the no-action alternative, these deficiencies would continue to impair the base's ability to successfully conduct their mission and to maintain their mission of testing and training. Should the no-action alternative be selected, Nellis AFB and the 99 ABW could not adequately meet future mission requirements or changes due to deteriorating infrastructure and would not meet its WINDO development goals.

- test, training, and evaluation capability and mission readiness would be compromised;
- military and civilian staff would not have optimal facilities;
- modernization of the force would be compromised; and
- operating costs would continue to be inefficient.

2.4 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

The proposed action consists of a series of up to 631 projects. Given funding levels and other factors, not all may be implemented. If a specific project were found to be substantively changed in scope from the WINDO list, if environmental characteristics were changed, if regulations had changed, or if base mission changes affected the project (e.g., Base Realignment and Closure recommendations), the project could be excluded from the WINDO plan without affecting other WINDO projects. However, proposing a subset of the total projects would be speculative and would not fulfill the defined need. Furthermore, analysis of an alternative composed of a subset of projects would reduce Nellis AFB's flexibility in decisions about WINDO projects and limit the scope of environmental analysis. Analysis of the proposed action would permit implementation of a subset of proposed projects while adhering to NEPA requirements. Any subset of projects would result in lesser environmental impacts that full implementation covered in this EA. As such, alternative subsets of projects were not carried forward for further analysis.

2.5 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

The EIAP is used to evaluate a proposal's potential environmental effects, and to notify and involve the public in the agency's decision-making process. The proponent (i.e., Nellis AFB) of a given proposed action is ultimately responsible for compliance with the EIAP. Air Force EIAP requires that decisions on proposals be based on an understanding of the potential environmental effects of the proposed action, and its reasonable alternatives, including the no-action alternative. Based on the EIAP, a decision is then made to implement the proposed action or any of the alternatives.

As described previously, the Nellis AFB WINDO projects were categorized to effectively evaluate the wide range of infrastructure activities that would occur at geographically separate locations (refer to Tables 2-1 and 2-2). Table 2-3 provides the type of improvement as well as the level of effect anticipated due to this type of improvement. Also identified in this table is the decision on whether or not to carry on further environmental impact analysis of this particular type of infrastructure improvement. Justification for these decisions follows the table.

Table 2-3 Potential Effects Identification

Label	*Potential Area of Effect by Location*	*Potential Level of Environmental Effects*	*Analyzed Further in this EA*
Repair/Install A1	Exterior buildings, parking lots, etc.; within existing footprint of a facility (e.g., paved areas, shoulders, etc.)	Effects would be limited to existing structures and disturbed locations so would not present any adverse environmental impacts	No
Repair/Install A2	Interior repair to existing facilities	Effects would be limited to existing structures and disturbed locations so would not present any adverse environmental impacts	No
Maintenance B1	Exterior maintenance to areas already landscaped, improved, or built	Effects would be limited to existing structures and disturbed locations so would not present any adverse environmental impacts	No
Maintenance B2	Interior maintenance to areas already landscaped, improved, or built	Effects would be limited to existing structures and disturbed locations so would not present any adverse environmental impacts	No
Construction C	New construction at either a new location or on an existing disturbed site	Effects would include the construction footprint, however, all potential sites are located on existing installation improved or disturbed areas	Yes
Add/Expand D	Interior and/or exterior additions or expansion to existing facilities	Effects would be limited to existing structures and disturbed locations so would not present any adverse environmental impacts	No
Equipment Installation E	Interior and/or exterior equipment installation within or adjacent to existing facilities	Interior and/or exterior additions or expansion to existing facilities	No
Airfield F	Interior and/or exterior additions, expansion, renovation improvements as to existing facilities, and construction along within the airfield environment, or along/adjacent to the flightline	For additions, expansion, renovation improvements, effects would be limited to existing structures, facilities, runways, and previously disturbed locations so would not present any adverse environmental impacts. Construction would occur in previously disturbed locations	Yes for construction projects No for upgrades to existing infrastructure
Utilities G	Improvements along existing sewer, power, water, and communication lines	Effects would be limited to existing utilities and should not	No
Demolish H	Remove existing infrastructure such as	Effects would be limited to existing building/facility footprint but would involve construction equipment and removal	Yes
ERP I	Continue monitoring and existing clean up efforts	Effects would continue as under existing conditions and would not change by continued maintenance of this program	No

In summary, the following types of infrastructure improvements will be evaluated for their potential to effect the human and natural environment: general construction at all locations, airfield construction, and demolition activities. All these projects have the potential to affect the environment by disturbing soils, operating heavy construction equipment, and impacting a range of resources. Each of these types of infrastructure improvements are evaluated in this EA; all other categories represent minor, ongoing maintenance and repair resulting in negligible, if any, impacts. These other projects qualify under 32 CFR Part 989 Appendix B for categorical exclusions and warrant no further analysis herein.

This EA examines the affected environment for the WINDO infrastructure upgrades proposed for the next 2 years, considers the current condition at the four major locations under the proposed action, compares those to conditions that might occur under the no-action alternative at these locations, examines the cumulative impacts of the WINDO infrastructure projects at all four locations, and then presents the cumulative effects within the entire affected environment of the proposed action for past, present, and reasonably foreseeable actions of Nellis AFB and other federal, state, and local agencies.

The following steps are involved in the preparation of this EA.

1. *Prepare a draft EA.* The first comprehensive document for public and agency review is the draft EA. This document examines the environmental impacts of the proposed actions as well as the no-action alternatives.
2. *Announce that the draft EA has been prepared.* An advertisement, in the papers local to the proposed action, will be posted notifying the public as to the draft EA's availability for review in local libraries and at a web site (www.cevp.com). After the draft EA is distributed, a 30-day public comment period begins.
3. *Provide a public comment period.* Our goal during this process is to solicit comments concerning the analysis presented in the draft EA.
4. *Prepare a final EA.* Following the public comment period, a final EA is prepared. This document is a revision (if necessary) of the draft EA, includes consideration of public comments, and provides the decisionmaker with a comprehensive review of the proposed action and the potential environmental impacts.
5. *Issue a Finding of No Significant Impact (FONSI).* The final step in the NEPA process is signature of a FONSI, if the analysis supports this conclusion, or a determination that an Environmental Impact Statement (EIS) would be required for the proposal.

2.6 OTHER REGULATORY AND PERMIT REQUIREMENTS

The NEPA process is intended to assist the decision makers in understanding the environmental consequences and in taking appropriate actions that protect, restore, and enhance the environment. Other federal statutes that may apply to the Proposed Action are listed in Table 2-4. Specific state and county permitting regulations, according to resource, are more fully addressed in Appendix B (Environmental Checklist).

Table 2-4 Other Major Environmental Statutes, Regulations, and Executive Orders Applicable to Federal Projects	
Environmental Resource	*Statutes*
Air	Clean Air Act (CAA) of 1970 (PL 95-95), as amended in 1977 and 1990 (PL 91-604); USEPA, Subchapter C-Air Programs (40 CFR 52-99)
Noise	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); USEPA, Subchapter G-Noise Abatement Programs (40 CFR 201-211)
Water	Federal Water Pollution Control Act (FWPCA) of 1972 (PL 92-500) and Amendments; Clean Water Act (CWA) of 1977 (PL 95-217); USEPA, Subchapter D-Water Programs (40 CFR 100-145); Water Quality Act of 1987 (PL 100-4); USEPA, Subchapter N-Effluent Guidelines and Standards (40 CFR 401-471); Safe Drinking Water Act (SDWA) of 1972 (PL 95-923) and Amendments of 1986 (PL 99-339); USEPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)
Biological Resources	Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-654); Sikes Act of 1960 (PL 86-97) and Amendments of 1986 (PL 99-561) and 1997 (PL 105-85 Title XXIX); Endangered Species Act of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79)
Wetlands and Floodplains	Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (PL 92-500); USEPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref); Floodplain Management-1977 (EO 11990); Emergency Wetlands Resources Act of 1986 (PL 99-645); north American Wetlands Conservation Act of 1989 (PL 101-233)
Cultural Resources	National historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq.) (PL 89-865) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575); Protection and Enhancement of the cultural Environment-1971 (EO 11593); Indian Sacred Sites-1966 ((EO 13007); American Indian Religious Freedom Act (AIRFA) of 1978 (PL 94-341); Antiquities Act of 1906; Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601)
Solid/Hazardous Materials and Waste	Resource Conservation and Recovery Act (RCRA) of 1976 (PL 94-5800), as Amended by PL 100-582; USEPA, subchapter I-Solid Wastes (40 CFR 240-280); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 USC 9601) (PL 96-510); Toxic Substances Control Act (TSCA) (PL 94-496); USEPA, Subchapter R-Toxic Substances Control Act (40 CFR 702-799); Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 162-180); Emergency Planning and Community Right-to-Know Act (40 CFR 300-399)
Environmental Justice	EO 12898-Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations; Protection of Children from Environmental Health Risks and Safety Risks (EO 13045)

Under the proposed action, Nellis AFB would need to reevaluate its National Pollution Discharge Elimination System permit and Stormwater Pollution Prevention Plans to ensure compliance. For projects at Nellis AFB itself (i.e., those projects within the environs of Las Vegas), a Surface Area Disturbance Permit, Dust Control Permit, Dust Mitigation Plan, and a Site-Specific Dust Mitigation Plan

would also need to be submitted for projects larger than a quarter-acre as well as acquiring the appropriate construction permits. Nellis AFB has initiated informal consultation with the Nevada State Historic Preservation Officer (SHPO).

2.7 MITIGATION MEASURES

In accordance with 32 CFR 989.22, Nellis AFB must indicate if any mitigation measures would be needed to implement the proposed action or any alternative selected as the preferred alternative under this environmental assessment. For purposes of this EA (to implement the WINDO program infrastructure improvements in the next 2 years), no mitigation measures would be needed to arrive at a finding of no significant impact if the proposed action were selected for implementation at Nellis AFB.

2.8 SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

This EA provides an analysis of the potential environmental consequences resulting from implementation of the proposed action and no-action alternative. Ten resource categories were analyzed to identify potential impacts: air quality; noise; land use; socioeconomics; transportation, soils and water; biological; cultural; and safety. According to the analysis in this EA, implementation of the proposed action or no-action alternative would not result in significant environmental impacts in any resource category. Implementing the proposed action would not significantly affect existing conditions at Nellis AFB, Creech AFB, NTTR, or TTR. The following summarizes and highlights the results of the analysis by resource category.

Air Quality. There would be no perceptible change to air quality under the proposed action. Emissions during the construction period would increase; however, they would be temporary in nature and would end when construction is complete. Because Nellis AFB is located in a nonattainment area for three out of the five criteria pollutants (particulate matter [PM_{10}], carbon monoxide [CO], and 8-hour ozone [VOCs]), emissions from demolition and construction projects at the base will be cumulatively measured to ensure that no criteria pollutant *de minimus* thresholds are exceeded in any given year. Fugitive dust (PM_{10}) emissions will be managed by implementation of control measures in accordance with standard construction practices. A fugitive dust permit will be required for construction projects at Nellis AFB; however, a permit is not required for construction and demolition projects at Creech AFB, NTTR, and TTR because they are in areas of attainment. In general, fugitive dust and combustive emissions would produce localized, short-term, elevated air pollutant concentrations which would not result in any long-term impacts on the air quality in Clark County (Nellis and Creech AFBs) or in Lincoln or Nye Counties in which NTTR and TTR related facilities are located.

Noise. For the proposed action, noise would predominantly result from construction/demolition activities and associated vehicle traffic. Noise from construction activity varies with the type of equipment being operated, but use of heavy equipment occurs temporarily and infrequently throughout the daylight hours. In general, construction and demolition noise at Nellis AFB, Creech AFB, and TTR would be contained within the installation boundaries, be intermittent in nature, and of short-term duration. WINDO improvement projects within NTTR would occur at remote locations, with limited public access, and at a distance from any population concentrations. Therefore, no long-term noise impacts would result from implementation of the proposed action.

Land Use. The proposed action calls for new facilities and the demolition of older facilities, as well as numerous maintenance and repair activities. The proposed facilities would be sited to ensure compatibility with existing and proposed land uses in accordance with the Nellis AFB General Plan. In addition, the Air Force anticipates that new construction, expansion, and installation would likely occur on previously used and disturbed ground. Construction would avoid locations such as cultural resources, sensitive habitat, and environmental restoration program sites. Proposed WINDO projects at Creech AFB, NTTR, and TTR would be consistent with existing land uses and plans, and would not alter existing land uses or ownership. Therefore, no impacts to land use are anticipated.

Utilities. A slight increase in electrical use would be anticipated as a result of the overall increase in facility space; however, new facility construction would employ energy conserving equipment to the extent possible. System capacity would be adequate to meet this demand. Potable water demand is not expected to increase. Although a slight increase in wastewater flows could occur, no adverse impacts to wastewater treatment are anticipated. No significant impacts to utilities would result if the proposed action were implemented.

Socioeconomics. Construction activity on Nellis AFB, Creech AFB, NTTR, and TTR would increase and support short-term beneficial impacts to the local community (Las Vegas, Indian Springs, and Tonopah, respectively). However, given the growth and economy of the Las Vegas metropolitan area, and the minor amount of construction/demolition activities occurring at the other locations, such benefits would be minimal. Operation of the new facilities would draw from existing manpower positions and not create new jobs for any of the communities; therefore, no significant impacts are anticipated if the proposed action were implemented.

Transportation. Construction-related traffic on roads such as Las Vegas and Nellis Boulevards around Nellis AFB and Interstate 95 for Creech AFB, NTTR, and TTR would be short-term and temporary, with negligible affect. Construction-related traffic on Nellis and Creech AFBs could temporarily affect traffic over the course of 2 years; traffic levels at Nellis and Creech AFBs could, at times, be moderate to high during the construction/demolition period. However, dispersal of the projects around the bases would ease traffic issues. Nellis and Creech AFB roadways would be able to accommodate the anticipated

traffic levels, although temporarily increased levels may create limited, congestion during peak traffic hours. Proposed construction at NTTR and TTR would have negligible impact on transportation resources as traffic levels would remain very low. All of these locations are remote and draw minimal traffic.

Soils and Water Resources. Potential impacts to soils would be negligible from the proposed action, differing little from existing conditions at the sites. No surface waters are located near the proposed action sites. Construction and demolition sites tend to be flat, previously disturbed portions of the base, Creech AFB, NTTR, and TTR. Standard best management practices (e.g., watering, erosion control, and sediment retention measures and silt fencing) would be employed to reduce the chance of sediment transport. The chances of sedimentation into any water sources would be negligible.

The local drainage system is capable of handling surface runoff during rainstorms and the proposed WINDO locations are not located on a floodplain. The impact to groundwater recharge would be negligible given the low average annual precipitation and the lack of year-round surface waters in the proposed locations. Infiltration historically has been a minimal source of recharge. Therefore, no impacts would occur to water resources if the proposed action were implemented.

Biological Resources. Proposed projects would occur in previously developed or disturbed areas resulting in insignificant impacts to biological resources. Potential impacts to wildlife from construction noise would be short-term and not be expected to affect wildlife that are already exposed to flight activities. New road construction could adversely impact wildlife habitats through fragmentation although the impacts would not be significant. No adverse impacts to rare plant species would be expected. If during any ground disturbing activity in the NTTR, the presence of desert tortoise is observed, the Air Force would comply with the requirements of the 2003 USFWS Biological Opinion for the protection of the species. Wetlands do not exist in the affected region; therefore no impact to this resource would occur. No significant impact to biological resources would occur if the proposed action were implemented.

Cultural Resources. Under the proposed action, buildings, garages, parking lots, roads, fences, and runway shoulders would be constructed and numerous buildings demolished. There are a few National Register-eligible sites associated with the four proposed locations; however, the base intends to avoid any known National Register-eligible sites and structures. No traditional cultural properties are known to occur within the proposed locations. If an unanticipated discovery of archaeological materials is made, or if a project would affect a known National Register-eligible site or structure, procedures in accordance with 36 CFR 60 and the Nellis AFB Cultural Resource Management Plan would be implemented. These procedures would include (as appropriate) mitigation, consultation with tribal representatives, and review by the State Historic Preservation Officer and the Advisory Council for Historic Preservation prior to implementation.

Safety. None of the projects discussed within the WINDO program would have an impact on safety at Nellis AFB, Creech AFB, NTTR, or TTR. All current day-to-day operations have established safety guidelines and procedures which would continue to be observed. No incompatible projects would occur within safety zones. No adverse impact to safety would be anticipated under the proposed action.

CHAPTER 3

DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

CHAPTER 3
DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 ANALYSIS APPROACH

NEPA requires focused analysis of the areas and resources potentially affected by an action or alternative. It also provides that an EA should consider, but not analyze in detail, those areas or resources not potentially affected by the proposal. Therefore, an EA should not be encyclopedic; rather, it should be succinct. NEPA also requires a comparative analysis that allows decisionmakers and the public to differentiate among the alternatives. This EA therefore, focuses on those resources that would be affected by the proposed WINDO projects at Nellis AFB, Creech AFB, NTTR, and TTR, NV.

CEQ regulations (40 CFR Parts 1500-1508) for NEPA also require an EA to discuss impacts in proportion to their significance and present only enough discussion of other than significant issues to show why more study is not warranted. The analysis in this EA considers the current conditions of the affected environment and compares those to conditions that might occur should either of the alternatives (i.e., proposed action and no-action) be implemented.

3.1.1 Affected Environment

Evaluation and analysis of the proposed action indicate that resources subject to ground disturbing activities have the greatest potential to be affected. The types of ground disturbing activities include site preparation; facility construction, demolition, and maintenance; sewer system and other utilities maintenance and upgrades; storm drainage systems; landscaping; and force protection and anti-terrorism upgrade activities.

Resources Analyzed

Table 3-1 presents the results of the process of identifying resources to be analyzed in this WINDO EA. This assessment evaluates air quality; noise; land use; utilities; socioeconomics; recreation and visual resources; transportation; soils and water resources; biological resources; cultural and traditional resources; and safety. These resources are analyzed because they may be potentially affected by implementation of the proposed action and no-action alternative.

Table 3-1 Resources Evaluated in the Environmental Impact Analysis Process				
Resource	*Potentially Affected by WINDO Projects*			
	Nellis AFB	*Creech AFB*	*NTTR*	*TTR*
Air Quality	Yes	Yes	Yes	Yes
Noise	Yes	Yes	Yes	Yes
Land Use	Yes	Yes	Yes	Yes
Utilities	Yes	Yes	Yes	Yes
Socioeconomics	Yes	Yes	Yes	Yes
Transportation	Yes	Yes	Yes	Yes
Biological Resources	Yes	Yes	Yes	Yes
Soils and Water Resources	Yes	Yes	Yes	Yes
Cultural and Traditional Resources	Yes	Yes	Yes	Yes
Safety	Yes	Yes	Yes	Yes
Environmental Justice and Protection of Children	No	No	No	No
Hazardous Materials and Waste	No	No	No	No
Recreation and Visual Resources	No	No	No	No

Resources Eliminated from Further Analysis

The Air Force assessed numerous resources (refer to Table 3-1) for their potential to be affected by the proposed action and the no-action alternative. In accordance with CEQ regulations, this evaluation determined three resources did not warrant further examination in the EA: 1) environmental justice and protection of children, 2) hazardous materials and waste, and 3) recreation and visual resources. Due to the nature of the proposed action, these resources would either not be affected by implementation of infrastructure improvements, have no past or present on-site hazardous waste and materials concerns, or are sufficiently analyzed in previous documents. These documents include the: *F-22 Force Development Evaluation and Weapons School Beddown Nellis AFB, Environmental Impact Statement* (NAFB 1999c), *Renewal of the Nellis Air Force Range Land Withdrawal Legislative Environmental Impact Statement* (NAFB 1999b), *Integrated Natural Resources Management Plan Nellis AFB, Nellis AFR* (NAFB 1999a), *Environmental Assessment for Nellis Air Force Range Complex Fiber Optic Line Route from Indian Springs AFAF, Clark County, Nevada to Cedar Pass Facility, NTTR North Range Nye County, Nevada* (NAFB 1998b), and *Regional Training Area Expansion, U.S. Air Force 99th Ground Combat Training Flight Environmental Assessment* (NAFB 1997a) and can be incorporated by reference. The following provides the rationale for this approach to eliminating three resources from further analysis.

Environmental Justice and Protection of Children. Environmental justice addresses the disproportionate effect a federal action may have on low-income or minority populations. Executive Order (EO)12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* ensures the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Because children may suffer disproportionately from

environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires the identification and assessment of environmental health risks and safety risks that may affect children, and ensures that federal agency policy, programs, activities, and standards address environmental risks and safety risks to children.

The existence of disproportionately high and adverse impacts depends on the nature and magnitude of the effects identified for each of the individual resources. Each of the affected areas comprise either a military base or are secure sites and located well-away from communities of any kind. As such, no potential to affect people of ethnicity or income level would exist. Construction, demolition, repair, and upgrade projects associated with the proposed action at each location would not pose a risk to communities or population centers nor disproportionately impact low income or minority populations. In addition, the proposed action would not pose environmental and safety risks to children due to the fact that infrastructure improvements are limited to the administrative, industrial, and/or operational areas on Nellis AFB, and at NTTR and TTR, access to the public is prohibited and there are no children at these installations. Therefore, since no minority, low-income groups, or children would be affected disproportionately or placed at risk by implementing the proposed action or no-action alternative, environmental justice and protection of children as a resource was eliminated from further analysis.

Hazardous Materials and Waste. Effects from hazardous materials and waste associated with infrastructure improvement projects under the WINDO program would be negligible to nonexistent. Existing environmental programs (e.g., Environmental Restoration Program) at Nellis AFB, Creech AFB, TTR, and NTTR have identified hazardous materials and/or waste that might be found at these locations and will be avoided when locating any of the proposed facilities for WINDO projects. While implementing WINDO projects, use of hazardous substances (e.g., gasoline) for fueling and equipment maintenance, and handling of asbestos containing materials and lead based paint, if encountered during demolition or facility modifications, will be conducted (i.e., removed and disposed of) according to existing Air Force instructions, policy, and procedures, as well as state and local regulations. No new waste streams or types would be added, nor would any asbestos containing materials or lead based paint be used in new construction. Adherence to policy relating to hazardous materials and waste storage and use during construction/demolition activities would be monitored under the Air Force's Environmental, Safety and Occupational Health Compliance Assessment and Management Program which requires both internal audits and examination by independent reviewers. Existing Hazardous Material Management Plan and Spill and Pollution Prevention Plans would be implemented (and updated as applicable) to address activities related to WINDO actions in accordance with Air Force regulations.

Use of materials for infrastructure improvement projects would not alter the large quantity generator status of Nellis AFB, or any existing procedures for hazardous materials and waste. Handling and treatment of these materials and wastes would continue according to Air Force and other federal regulations. Infrastructure improvement activities would take place in the same areas where comparable

operational and maintenance activities already occur, remain consistent with existing conditions, and be contained within the Nellis AFB, Creech AFB, NTTR, and TTR environs. Given the enforced requirement to ensure safe handling of materials and the minimal amounts of materials likely to be used or generated during implementation of WINDO projects, relative to existing levels, the probability of an effect on the environment would be negligible; therefore, further analysis in this EA is unwarranted.

Recreation and Visual Resources. Nellis AFB, Creech AFB, NTTR, and TTR infrastructure improvements would occur on military installations and, in some instances, would actually improve existing recreational facilities on Nellis AFB. Therefore, Nellis AFB anticipates no negative effects on or conflicts with recreational resources as a result of the proposed WINDO projects. In addition, any construction and/or improvements would: 1) take place on military installations and be consistent with existing visual landscapes, 2) primarily occur in the developed portion of these installations; 3) be built of similar materials as other structures on the installations; and 4) be landscaped consistent with the existing habitat. For these reasons, the proposed action would not to impact the recreational resources or the visual environment at any of the affected locations or on surrounding lands.

3.1.2 Synergistic and Cumulative Effects Definition and Scope

Under the proposed action, Nellis AFB would implement numerous projects on Nellis AFB, Creech AFB, NTTR, and TTR during a 2-year timeframe. The potential environmental effect to resources from implementation of a single project at any of these locations may be insignificant; however, when combined with other projects occurring within the same region and in the same relative timeframe, a synergistic effect arises so that the total effect may appear greater than the sum of individual effects.

Cumulative effects for this portion of the environmental analysis consider the potential impacts that multiple projects, occurring in the same geographic location, may have on any one resource category. Just as cumulative effects in Chapter 4 (see Section 4.1) consider potential environmental impacts resulting from "the incremental impacts of an action when added to other past, present, and reasonable foreseeable future actions..." in relation to activities outside Nellis AFB, Creech AFB, NTTR, and TTR; individual resource cumulative effects analysis will evaluate the potential for cumulative effects to individual resources due to the WINDO infrastructure improvements.

Cumulative effects under each resource category address the following questions:

- Does a relationship exist such that an affected resource area of a proposed project might interact with the affected resource area of another proposed project under the proposed action?
- Does one or more of the affected resource areas of a proposed project interact with resource areas of another project?
- If a relationship exists, does the assessment reveal any potentially significant impact not identified when any of the projects are considered alone?

3.2 AIR QUALITY

Understanding air quality for the affected area requires knowledge of: 1) applicable regulatory requirements; 2) types and sources of air quality pollutants; and 3) location and context of the affected area.

Regulatory Requirements

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. The significance of the pollutant concentration is determined by comparing it to the federal and state ambient air quality standards. The Clean Air Act (CAA) and its subsequent amendments (CAAA) established the National Ambient Air Quality Standards (NAAQS) for seven "criteria" pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 and 2.5 microns (PM_{10} and $PM_{2.5}$), and lead (Pb). These standards (see Appendix C) represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. The Nevada Department of Environmental Protection (NDEP), Bureau of Air Quality (BAQ) has adopted the NAAQS, with some exceptions and additions (see Appendix C).

Based on measured ambient criteria pollutant data, the United States Environmental Protection Agency (USEPA) designates all areas of the U.S. as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. An area that is currently in attainment, but was formerly a nonattainment area is termed a maintenance area. An area is often designated as unclassified when there are insufficient ambient criteria pollutant data for the USEPA to form a basis for attainment status. Unclassified areas are typically rural or remote, with few sources of air pollution.

The CAA requires each state to develop a State Implementation Plan (SIP) which is its primary mechanism for ensuring that the NAAQS are achieved and/or maintained within that state. According to plans outlined in the SIP, designated state and local agencies implement regulations to control sources of criteria pollutants. The CAA provides that federal actions in nonattainment and maintenance areas do not hinder future attainment with the NAAQS and conform with the applicable SIP (i.e., Nevada SIP). There are no specific requirements for federal actions in unclassified or attainment areas. However, all federal actions must comply with all state and local regulations.

The CAA also establishes a national goal of preventing degradation or impairment in any federally-designated Class I area. As part of the Prevention of Significant Deterioration (PSD) program, mandatory Class I status was assigned by Congress to all national parks, national wilderness areas, memorial parks greater than 5,000 acres and national parks greater than 6,000 acres. In Class I areas, visibility impairment is defined as a reduction in visual range and atmospheric discoloration. Stationary

sources, such as industrial complexes, are typically an issue for visibility within a Class I PSD area. The closest Class I Area to the proposed action (Nellis AFB, Creech AFB, NTTR, and TTR) is Death Valley National Park, which overlaps the California/Nevada border. However, this park is about 60 miles from any of the installations proposed under the WINDO projects.

Types and Sources of Air Quality Pollutants

Pollutants considered in this EA analysis include the criteria pollutants measured by state and federal standards. These include SO_2 and other compounds (i.e., oxides of sulfur or SO_x), volatile organic compounds (VOCs), which are precursors to (indicators of) O_3; nitrogen oxides (NO_x), which are also precursors to O_3 and include NO_2 and other compounds; CO, and PM_{10}. These criteria pollutants are generated by the types of activities (e.g., construction) associated with the proposed action. Airborne emissions of lead and hydrogen sulfide are not included because there is no known significant hydrogen sulfide or lead emissions sources in the region or associated with the proposed action and the no-action alternative.

3.2.1 Affected Environment

Nellis and Creech AFBs. For the proposed action and no-action alternative, the Nellis AFB air quality affected environment is Clark County and subsumed within this county is the Las Vegas Valley. Currently, portions of Clark County are in serious nonattainment for CO and PM_{10}; in addition, the Las Vegas Valley (defined by the boundaries of Hydrographic Area 212 and in which Nellis AFB is found), is in basic (subpart 1) nonattainment for 8-hour Ozone (precursors of this pollutant include VOCs) (DAQEM [Nevada Department of Air Quality and Environmental Management] 2004). In accordance with federal requirements, the Clark County Board of Commissioners has developed both a carbon monoxide SIP (CCHD 2000) and a PM_{10} SIP (CCHD 2001) for nonattainment areas of the county; a SIP for 8-hour Ozone has not yet been adopted. Because Nellis and Creech AFBs are located in Clark County, they are both regulated under permits to operate by the Clark County Department of Air Quality Management (DAQEM) (NAFB 2004).

NTTR and TTR. The affected environment for NTTR and TTR is Lincoln and Nye County and, due to their rural nature and lack of significant sources of pollutants, are unclassified for state and federal air quality standards. Table 3-2 summarizes the baseline emissions for Nellis AFB, Creech AFB, and NTTR.

Table 3-2 Baseline Air Emissions (tons/year)*					
	CO	*VOCs*	*NO_x*	*SO_x*	*PM_{10}*
Nellis AFB	18.316	27.150	34.584	3.73	33.404
Creech AFB	0.109	8.197	0.506	0.931	0.035
NTTR	4.88	3.44	22.07	16.81	3.02

Source: 2004 Air Emissions Inventory (NAFB 2004a,b,c) for: a) Nellis Main Base; b) Creech AFB (formerly Indian Springs AFAF and includes Point Bravo and Silver Flag Alpha); and c) NTTR (includes TTR, Tolicha Peak ECR, and Tonopah ECR).

**Note*: $PM_{2.5}$ was regulated in 2005 and is not reflected in these inventories.

Air emissions in all three areas are primarily generated from vehicles and equipment at maintenance shops, and at Nellis AFB, boilers and paint booths are also major contributors of air pollutant emissions.

3.2.2 Environmental Consequences

Proposed Action

Air emissions resulting from the proposed action were evaluated in accordance with federal, state, and local air pollution standards and regulations. Air quality impacts from a proposed activity or action would be significant if they:

- increase ambient air pollution concentrations above any NAAQS;
- contribute to an existing violation of any NAAQS;
- interfere with or delay timely attainment of NAAQS; or
- impair visibility within any federally-mandated federal Class I area.

According to USEPA General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to cause violations in a NAAQS nonattainment area (i.e., Nellis AFB) must undergo a conformity analysis. A conformity analysis is not required if the proposed action occurs within an attainment area (NTTR, TTR, and Creech AFB because it is not located in any nonattainment areas in Clark County). Since Las Vegas is in nonattainment status for CO, 8-hour Ozone, and PM_{10}, a conformity determination must be performed if project emissions exceed the *de minimus* threshold for CO at 100 tons per year, VOCs (contributor to ozone) at 100 tons, and 70 tons per year of PM_{10} at Nellis AFB. No conformity analysis is needed for Creech AFB, NTTR, and TTR because they are not located in any areas of nonattainment or maintenance for criteria pollutants. The approach, therefore, to air quality analysis for Nellis AFB was to determine the greatest amount of ground-disturbance activities that could occur (in a given year) before *de minimus* thresholds of any of the three criteria pollutants were met. This approach was taken because Nellis AFB has not determined the exact projects to be undertaken, the order in which they would occur, or when they would occur. This is due to funding availability, mission needs, and potential base realignment to name just a few reasons why exact projects cannot be determined at this time.

In order to determine the amount of construction and demolition activities generating emissions that would meet the *de minimus* threshold of any one of the three criteria pollutants, in any one year, the following factors were considered: for construction, contributions from engine exhaust emissions (i.e., construction equipment, material handling, and transportation) and fugitive dust emissions (e.g., from digging and grading activities). Demolition emissions evaluated include fugitive dust and transport of demolition debris offsite. Paving emissions include combustive emissions from bulldozers, rollers, and paving equipment, plus emissions from dump trucks hauling pavement materials to the various sites. Appendix C provides the worksheet developed to estimate emissions from the first scenario that involved demolition of 1 acre of land, this included materials associated with a 2,000 square foot, 2-story concrete building, debris removal, and site preparation. The construction portion of the scenario involved 3 acres that included a 30,000 square-foot concrete, maintenance shop with a 100,000 square-foot parking area. Table 3-3 presents the estimated emissions for this scenario (Scenario 1). The second scenario (also found in Appendix C) increased the size of demolition (2 acres) and construction (14 acres) when one of the three criteria pollutants exceeded a threshold, in this case PM_{10} was the first criteria pollutant to exceed the de minimus of 70 tons per year. From this exercise, it was determined that disturbing a total of approximately 16 acres (or 631,620 square feet), within a one, calendar-year timeframe, would create emissions that would exceed the 70 tons per year for PM_{10}. Therefore, if a single new project's demolition and construction activities exceed this 16-acre level (in a given calendar year), emissions could exceed *de minimus* levels and a general conformity determination should be undertaken.

Table 3-3 Nellis AFB Projected Scenarios Pollutant Emissions (tons/year)

	CO	*VOCs*	*NO_x*	*SO_x*	*PM_{10}*
Scenario 1	0.38	0.11	0.93	0.11	3.45
Scenario 2	6.82	1.94	16.75	1.92	70.26

In summary, emissions generated by construction, demolition, and paving projects are temporary in nature and would end when construction is complete. The emissions from fugitive dust (PM_{10}) would be minimized due to implementation of control measures in accordance with standard construction practices and Clark County permitting requirements. For instance, frequent spraying of water on exposed soil during construction, proper soil stockpiling methods, and prompt replacement of ground cover or pavement are standard landscaping procedures that could be used to minimize the amount of dust generated during construction. Using efficient practices and avoiding long periods where engines are running at idle could also reduce combustion emissions from construction equipment. A fugitive dust permit will be required for construction projects at Nellis AFB; however, it is not required for construction and demolition projects at the other locations (Creech AFB, NTTR, and TTR).

In general, fugitive dust and combustive emissions would produce localized, short-term elevated air pollutant concentrations, which would not result in any long-term impacts on the air quality in Clark County if the total acreage in a given year does not exceed 16 for any single new project within a given

year. Air quality in Lincoln and Nye Counties, in which NTTR and TTR facilities are located, would also not experience any long-term impacts due to their rural nature and unclassified/attainment status.

There are no PSD Class I areas within the vicinity of any of the locations proposed, therefore, the temporary construction-related emissions of PM_{10} and Sulfur Oxide (SO_x) are not expected to adversely impact visibility.

No-Action Alternative

Under this alternative, no construction emissions would occur and emissions would be identical to the baseline conditions presented in Table 3-2. No change to existing conditions at Nellis AFB, Creech AFB, NTTR, and TTR is anticipated if this alternative were implemented.

3.2.3 Cumulative Effects

Cumulatively, air emissions at Nellis AFB, Creech AFB, NTTR, and TTR would not affect the overall regional air quality. The distances between these distinct areas (almost 100 miles between NTTR/TTR and Nellis AFB and 45 miles between Creech AFB and Nellis AFB) decrease the potential for presenting an adverse cumulative effect to criteria pollutants.

3.3 NOISE

Noise is usually defined as "unwanted sound" and is recognized as an environmental pollutant that can produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. At undesirable levels, pitch is generally an annoyance, while loudness can affect our ability to hear. The quality we refer to as "pitch" is a function of the number of complete vibrations, or individual sound waves, striking our ears per unit of time. As this number (measured in cycles per second) increases, we hear a rising pitch; as it decreases, we hear a deepening pitch.

Loudness is a function of the amount of energy in a sound wave. This energy is, in turn, a function of sound pressure. A sound wave consists of a moving front of pressure that exceeds the ambient atmospheric pressure, followed by a trough that is below ambient atmospheric pressure. The more this pressure front varies from the ambient pressure, the louder, or more intense, the sound (loudness also depends on other factors, as discussed below). The perception of sound intensity is dependent on the reception characteristics of the human ear. The ear is tuned to receive sound that is within a specific

intensity range. Sound below that range is inaudible, while sound above that range can become painful and damaging to the ear.

Sound intensity is measured in units called decibels (dB). The dB system of measuring sound provides us with a simplified relationship between the physical intensity of sound and its perceived loudness to the human ear. The dB scale is logarithmic, therefore, sound intensity increases or decreases exponentially with each dB of change. For example, a 10-dB level is 10 times more intense than 1 dB, while a 20-dB level is 100 times more intense, and a 30-dB level is 1,000 times more intense.

When the basic dB unit is adjusted to correct for the relative frequency response of the human ear, the unit is referred to as the "A-weighted" decibel (dBA). A-weighting de-emphasizes low frequencies, thus placing greater emphasis on mid and high frequencies. This is consistent with the relatively low sensitivity of normal human hearing at low frequencies. Because of the physical characteristics associated with noise transmission and reception, doubling of noise energy normally results in about a 3 dBA increase in noise levels while a 10 dBA noise level increase is generally required to perceive a doubling of noise. A 1 to 2 dBA change in ambient noise levels is generally not audible, even to sensitive receptors.

The dB level of a sound decreases (or attenuates) exponentially as the distance from the source increases. For a single point source, like a construction crane, the sound level decreases by approximately 6 dBs for each doubling of distance from the source. Sound that originates from a linear, or 'line' source, such as a heavily traveled traffic corridor, attenuates by about 3 dBs for each doubling of distance where no other features such as vegetation or walls absorb or deflect the sound. Noise from less heavily traveled roadways attenuates by about 4.5 dBs for each doubling of distance.

The time of day when a sound is emitted is an important factor in its annoyance potential. Sounds that may be barely noticeable at midday may be seriously disruptive at midnight. A number of measurement scales that attempt to account for this time factor have been developed. One of the more commonly used and accepted metrics of this type is the Day-Night Average A-Weighted Sound Level (DNL or Ldn). DNL represents a 24-hour average sound level in which a 10-dBA penalty is added to any sounds occurring between the hours of 10:00 p.m. and 7:00 a.m. DNL has been widely accepted as the best metric to determine community reaction to noise.

Federal, state, and local governments regulate noise to prevent noise sources from affecting noise-sensitive areas, such as residences, hospitals, and schools, and to protect human health and welfare. Both the Nevada Department of Transportation and the Federal Highway Administration require noise control devices such as sound walls when new highway projects will generate sound levels that will adversely affect sensitive land uses. Federal agencies, such as the Department of Housing and Urban Development, have established health-based maximum noise exposure recommendations. Local agencies, including

cities and counties, are responsible for defining and enforcing land use compatibility in various noise environments. The Air Installation Compatible Use Zone (AICUZ) study is the Air Force's vehicle for presenting their noise environment at two locations: Nellis AFB and Creech AFB. Due to their rural, remote locations, and the fact that these installations are not found adjacent to or near any communities, NTTR and TTR do not require an AICUZ study.

The AICUZ program promotes compatible land development in areas subject to aircraft noise and accident potential. Clark County has incorporated these AICUZ recommendations as an integral part of their comprehensive planning process and are regulated in the Clark County Unified Development Code, Title 30, Section 30.48, Part A, Airport Environs Overlay District, dated June 21, 2000, under the authority of Chapter 278, Planning and Zoning, of the Nevada Revised Statutes. Noise compatibility and airport environs implementing standards have also been adopted in the Clark County "Public Health and Safety Programs: Airport Environs Plan," an amendment of the Clark County Comprehensive Plan (NAFB 2003b).

As was mentioned above, the noise environment at NTTR and TTR facilities has not been evaluated because these installations lie totally within federal land, restricted from public access, and do not have any adjacent communities that would be potentially affected by noise generated at these remote locations. Therefore, these locations will not be analyzed further for potential noise effects due to WINDO program infrastructure improvements.

3.3.1 Affected Environment

Nellis and Creech AFB. The affected environment for Nellis AFB is the base itself and adjacent commercial and residential areas affected by noise contours generated at the base. Figure 3-1 presents the existing noise contours at the base and in the surrounding community. Figure 3-2 presents the existing noise contours at Creech AFB. Table 3-4 provides the number of acres within each of the noise contours at Nellis AFB and Creech AFB affected by the ; Section 3.4, Land Use, will discuss the types of land uses found within these contours.

Table 3-4 Baseline Noise Contours (acres)

	65-70[a]	*70-75*	*75-80*	*80-85*	*>85*	*Total*
Nellis AFB	13,940	6,620	2,004	598	90	23,252
Creech AFB	448	320	0	0	0	768

[a]: Noise levels in DNL.

Sources: Nellis AFB 2003b, 1999b

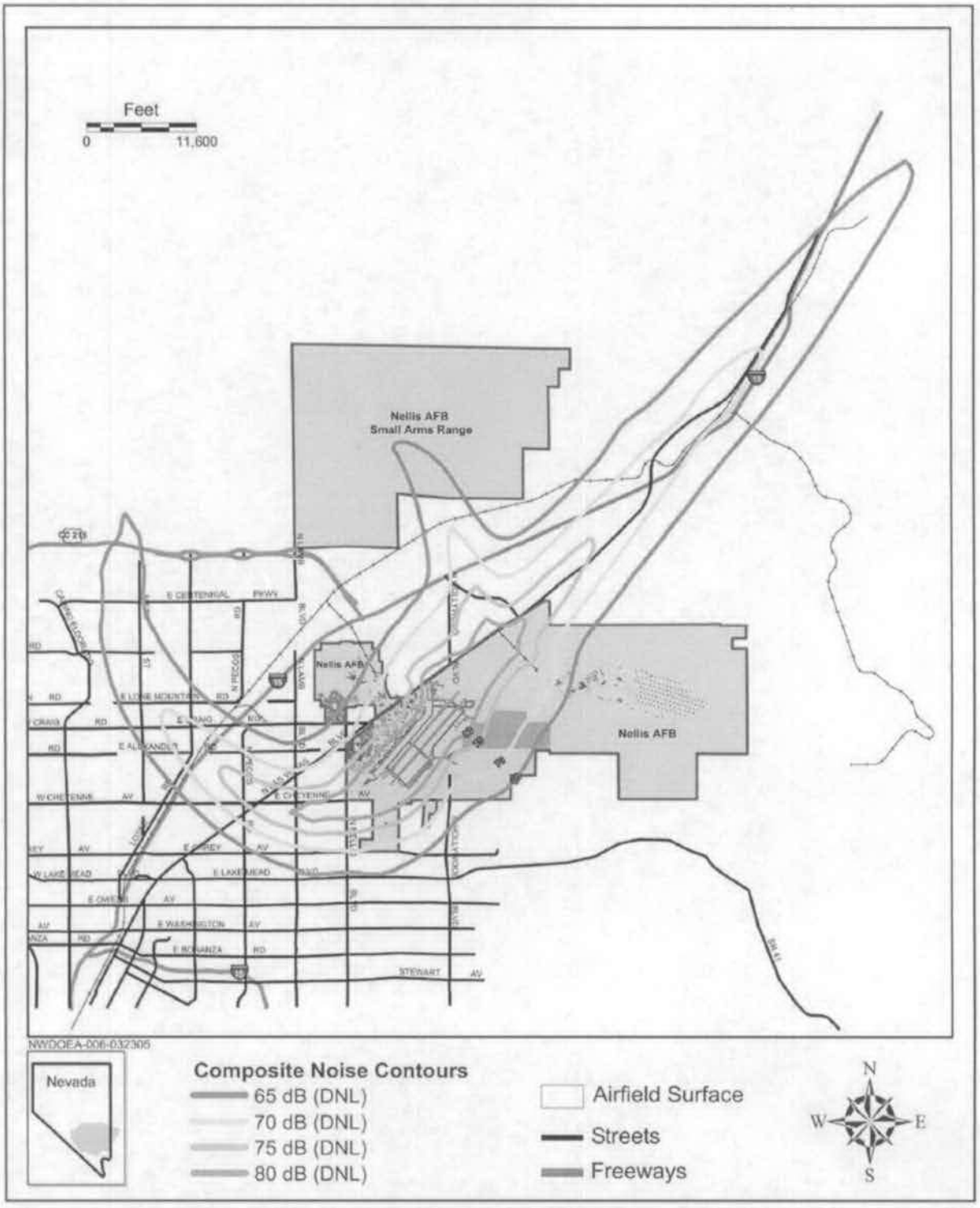


Figure 3-1 Nellis AFB Baseline Noise Contours

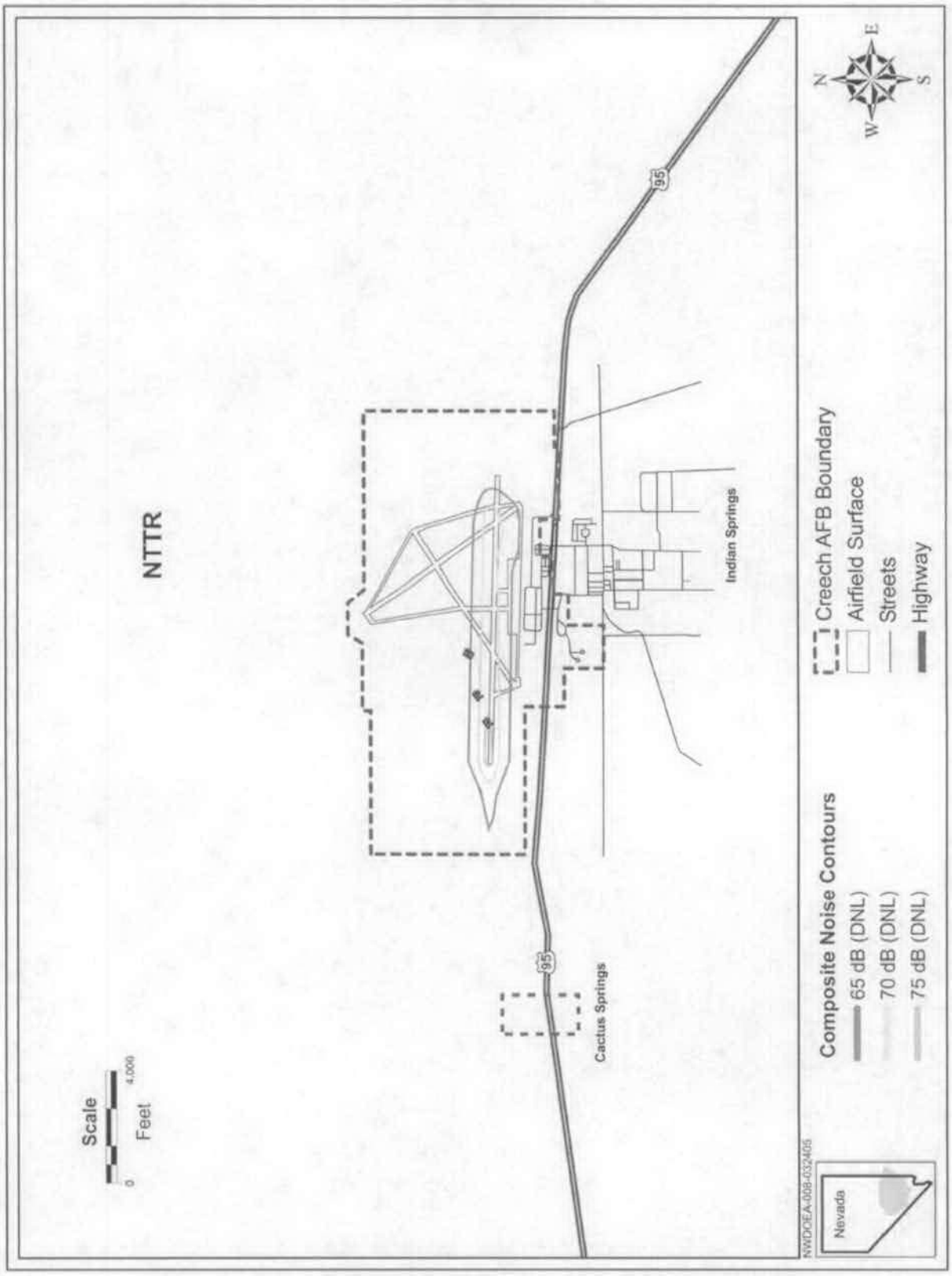


Figure 3-2 Creech AFB Baseline Noise Contours

3.3.2 Environmental Consequences

Proposed Action

The prime generators of noise at both Nellis AFB and Creech AFB are aircraft operations. For the proposed action, noise primarily would be derived from two sources: construction/demolition activities and vehicle traffic associated with the same construction/demolition activities. Other sources, such as aircraft operations would remain consistent with existing conditions as presented in Figures 3-1 and 3-2 and would not change under the proposed action.

To characterize construction activity noise levels, USEPA data (USEPA 1971) were used (Figure 3-3). Based on the USEPA criteria, construction noise resulting in an hourly equivalent sound level of 75 dBA at a sensitive receptor would represent a significant impact. Noise from construction activity varies with the types of equipment used and the duration of use. During operation, heavy equipment and other construction noise that generate noise levels ranging typically from 70 to 90 dBA at a distance of 50 feet. Commonly, use of heavy equipment occurs sporadically throughout the daytime hours.

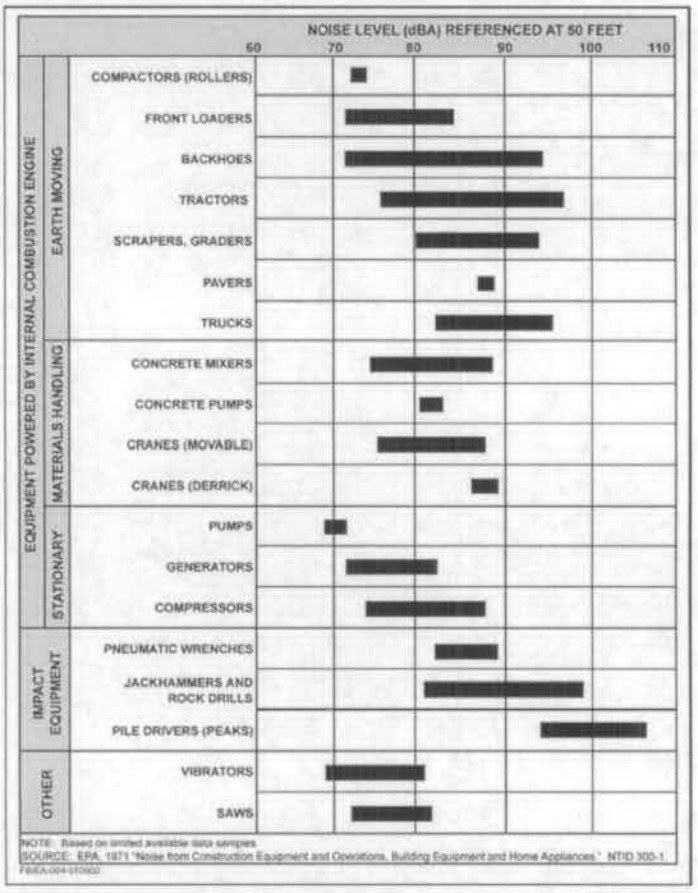


Figure 3-3 Typical Construction Equipment Noise Levels

To evaluate the potential noise that could be generated during construction and demolition activities, the two scenarios that were used in the air quality analysis were adopted. Appendix C provides specific noise levels broken out by activities and distance from the noise source, the following summarizes these findings. Under Scenario 1, the greatest noise levels would be generated during demolition debris removal and could reach a maximum of 76 dBA 50 feet from the site; at 500 feet noise would decrease to 61 dBA; and at 2,000 feet, noise generated from demolition activities would be 52 dBA. For Scenario 2, construction of the 412,500 square-foot apron, flightline, and parking area would generate a noise level of 79 dBA at 50 feet from the construction site; at 500 feet the noise level would be 64 dBA; and at 2,000 feet construction related activities would generate about 55 dBA.

Although construction/demolition activities at Nellis AFB and Creech AFB might take up to 2 years to complete, minimal to negligible impacts from noise would result for the following reasons:

- Heavy equipment that would generate the highest noise levels would not be used consistently enough to exceed the hourly equivalent noise level of 75 dBA for more than 1 hour and be within the boundaries of both Nellis AFB and Creech AFB.
- A majority of construction and demolition projects occur within the vicinity of the flightline and for Nellis AFB this area currently receives noise levels consistent with or greater than those that would be emanating from construction/demolition activities.
- At Creech AFB, noise levels from infrastructure improvements would be contained within the installation but would be short-term in nature.
- Construction/demolition activities would be expected to occur between 7:30 a.m. and 4:30 p.m. and pose little impact to neighboring communities.

In general, construction and demolition noise at both Nellis AFB and Creech AFB would be intermittent and short-term in duration, and no long-term (recurring) noise impacts would result from implementation of the proposed action. Noise contours would remain unchanged from existing conditions.

No-Action Alternative

Under this alternative, proposed construction and demolition projects would not occur. Noise levels would remain as presented in Figures 3-1 and 3-2.

3.3.3 Cumulative Effects

As with air quality, cumulatively, noise at Nellis AFB and Creech AFB would not affect the overall noise environment. The distance between these distinct areas (45 miles between Creech AFB and Nellis AFB) decreases the potential for presenting an adverse cumulative effect to the noise environment of surrounding communities if the proposed infrastructure improvements were to occur at both Nellis AFB and Creech AFB. NTTR and TTR are more than 50 miles from Creech AFB and more than 100 miles

from Nellis AFB and would not present a cumulative noise effect if the WINDO program projects were implemented.

3.4 LAND USE

Land use generally refers to human modification of the land, often for residential or economic purposes. It also refers to use of land for preservation or protection of natural resources such as wildlife habitat, vegetation, or unique features. Human land uses include residential, commercial, industrial, agricultural, or recreational uses; natural features are protected under designations such as national parks, national forests, wilderness areas, or other designated areas. The attributes of land use include general land use and ownership, land management plans, and special land use management areas. Land ownership is a categorization of land according to type of owner; the major land ownership categories include federal, state, and private. Federal lands within the affected areas for this proposed action, are further designated as managed by: Bureau of Land Management (BLM), U.S. Forest Service (USFS), U.S. Fish and Wildlife Service (USFWS), Department of Energy (DOE), and Department of Defense (DoD). Land uses are frequently regulated by management plans, policies, ordinances, and regulations that determine the types of uses that are allowable or protect specially designated or environmentally sensitive uses. Special land use management areas are identified by agencies as being worthy of more rigorous management.

The affected areas consist of Nellis AFB, Creech AFB, NTTR, and TTR. For Nellis AFB, the affected area extends outside the base to land subject to noise contours generated by aircraft operations. Similarly, areas within and outside Creech AFB affected by noise receive analysis. For both NTTR and TTR, only construction, modification, repair, or demolition projects would occur, so the affected area remains confined to those sites.

3.4.1 Affected Environment

Nellis AFB. Both the *Nellis Air Force Base Comprehensive Plan* (NAFB 1991) and the *Nellis AFB General Plan* (NAFB 2003a) provide background on the land uses within the base. Nellis AFB, located in southern Nevada about 8 miles northeast of Las Vegas in Clark County, totals 13,743 acres. The 21 square miles of land associated with Nellis AFB consists of three areas: Area I, the Main Base; Area II, the MSA/WSA; and Area III, including Manch Manor housing, a hospital, and an industrial area (refer to Figure 1-2).

Area I, the main base, lies east of Las Vegas Boulevard and encompasses 30 percent of the total base land area. Area I contains the greatest variety of land use activities, including runways, industrial facilities, housing areas, and most of the base's administrative, training, and support facilities. The area supports more than 2,000 buildings with about 1,200 family housing units (enlisted and officers), dormitories, and billeting facilities.

Area II, to the northeast of the Main Base, includes the MSA/WSA, RED HORSE Squadrons, and the Nellis Federal Prison Compound. This area occupies 59 percent of the total base land area. Much of Area II is set aside as safety zones and open space for munitions and weapons storage; minor amounts of land support facilities for administration, dormitories, and outdoor recreation.

West of Las Vegas Boulevard, Area III covers 11 percent of the total base land area. Land use at Area III consists of March Manor housing, recreational facilities, O'Callaghen Federal Hospital and some light industrial areas interspersed with considerable open space.

Open space accounts for about 60 percent of all Nellis AFB land; however, most of the land represents mandatory open space for safety zones around munitions storage or similar facilities. Of the total open space in all three areas, 75 percent occurs in Area II. This land is generally unavailable for future development because it is mandatory open space for explosive safety zones and clear zones. When munitions storage and directly associated facilities and safety zones are combined, munitions operations account for approximately 50 percent of the total Nellis AFB land area (Table 3-5).

Table 3-5 Land Use Summary (acreage and percentage) Nellis AFB

Category	*Present Acreage*	*Percent*
Airfield	1,468	10.68
Aircraft Operations and Maintenance	280	2.04
Industrial	1,784	12.98
Administrative	84	0.61
Community (Commercial)	59	0.43
Community (Service)	25	0.18
Medical	28	0.20
Housing	402	2.92
Outdoor Recreation	577	4.20
Open Space	9,031	65.72
Water	5	0.04
Total	*13,743*	*100*

Source: NAFB 2003a

Creation of safety zones at Nellis AFB minimizes the effects of a potential aircraft accident. These zones consist of clear, safety, and accident potential zones established around the airfield. These safety zones occur both on-base and off-base to lands not owned by DoD (Figure 3-4). Within on-base clear and safety zones, the Air Force prohibits construction (clear zone) or limits it in terms of placement and height (safety zone).

Figure 3-4 Nellis AFB Clear and Accident Potential Zones

Clear zones (CZs) and accident potential zones (APZs) delineate three geographic areas around the airfield where historic Air Force-wide mishap data have shown most aircraft accidents occur. The CZs, each measuring 4,000 feet wide by 3,000 feet long, extend directly from the ends of the runway. At Nellis AFB, the CZs are wholly contained within the base boundaries and permit no development. No incompatible land uses occur within the CZs (NAFB 2003b).

APZ I represents an area beyond the CZ with a significant potential for accidents, but less than the CZ. To the northeast, APZ I measures 4,000 feet wide by 5,000 feet long, lies within the base, and contains no incompatible land uses. On the southwest, APZ I extends off-base from the CZ with westward and southwestern arms associated with flight patterns. For the small portion of APZ I within the base, no incompatible land uses exist. Outside base boundaries, the Air Force recommends that land uses in this zone (APZ I) be limited to light industrial, manufacturing, transportation, communications, utilities, wholesale trade, open space, and agricultural uses. Uses that concentrate more than 50 people per acre are considered incompatible. APZ II, which has the lowest potential for aircraft accidents of the designated zones, extends beyond APZ I. At the northeast end of the runway, APZ II measures 4,000 feet wide by 7,000 feet long. About 70 percent of this APZ II lies within the base boundaries; this area supports no incompatible land uses. The APZ II, at the southwest end of the runway, occurs entirely off-base. It is recommended that land uses within this APZ include all of those considered compatible with APZ I, as well as low density residential, service, and retail trade. Uses that concentrate high densities of people in small areas are not considered compatible or appropriate.

As detailed in Section 3.3, Noise, the Air Force also considers compatibility of land use relative to noise levels generated by aircraft operation (NAFB 2003b). Current noise levels of 65 DNL to greater than 85 DNL affect the base with the highest noise levels generated on the runway and airfield. All of Area I underlies noise levels of 65 DNL or greater, but the on-base land uses are compatible. Most of Area II and Area III lie outside the 65 DNL contour; no incompatible land uses occur within it (NAFB 2003b).

Encroachment of incompatible land uses from development continues and represents a major issue for the base. Most of the development occurs south and west toward the Las Vegas urban area and includes the unincorporated communities of Sunrise Manor and North Las Vegas. To the north and east, the BLM administers most of the land consisting of open range and mountain areas. Urban uses (e.g., motels, Las Vegas Motor Speedway, fuel storage) exist along Las Vegas Boulevard in the area west of the Nellis AFB golf course. To the south, single family homes, mobile homes, vacant commercial parcels, and industrial facilities characterize land use. To the west, uses include commercial, residential, industrial, and an ever-decreasing amount of vacant, undeveloped land.

Clark County has established land use compatibility regulations around Nellis AFB associated with noise contours from the Air Force's 2001 AICUZ study. These regulations identify seven zones based on safety and noise levels (Table 3-6). In general, the regulations prohibit development within clear zones

and discourage anything other than low density development in APZ I and APZ II. Clark County restricts residential development to low density with noise attenuation in zones A-E80, A-E75, and A-E70 (equivalent to 80, 75, and 70 DNL contours). These zones are consistent with Air Force recommendations and the standard land use coding manual from the United States Department of Transportation (USDOT 1965).

Table 3-6 Clark County Land Use Compatibility in the Airport Environs

Land Use	*CZ*	*APZ I*	*APZ II*	*A-E80*	*A-E75*	*A-E70*	*A-E65*
Commercial	No	No	Yes[3]	Yes[5]	Yes[5]	Yes[5]	Yes
Industrial	No	Yes[3]	Yes[3]	Yes[5]	Yes[5]	Yes	Yes
Open/Agricultural	No[1]	Yes	Yes	No[1]	Yes[5]	Yes	Yes
Recreational	No[2]	No	Yes[3]	No[6]	No[6]	Yes	Yes
Residential	No	No	No[4]	No[4]	No[4]	No[4]	Yes[5]

Notes: [1] Open land acceptable
[2] Golf courses; driving ranges acceptable
[3] Low density/intensity only
[4] Less than 2 single family units per acre acceptable
[5] With noise attenuation features
[6] Indoor recreation with noise attenuation acceptable.

In keeping with recommendations and regulations, the CZs fall entirely on-base and contain no incompatible land uses (NAFB 2003b). The APZs, however, contain a mixture of all land use types including over 300 acres of residential development.

Creech AFB. Creech AFB lies approximately 45 miles northwest of Las Vegas, Nevada along Interstate Highway 95. Situated within the South Range of NTTR, Creech AFB lands are designated for military activities, the South Range consists of land withdrawn for exclusive military use pursuant to the enactment of the Military Land Withdrawal Act (MLWA) of 1999, PL 106-65.

Creech AFB encompasses approximately 2,830 acres of land, mostly designated as open space in order to ensure CZ safety around the airfield (Figure 3-5). The main Creech AFB runway runs east-west across the base, whereas the northwest-southeast runway supports RQ-1 Predator UAV operations. An inactive third runway extends southwest-northeast across the base.

Creech AFB serves as the practice base for the Nellis-based Thunderbirds demonstration team, as well as the base for RQ-1 Predator UAV squadrons. Other related squadrons are also based at Creech AFB. In addition, Creech AFB supports NTTR, including 57 Wing flying operations, Expeditionary Readiness Training (ExpeRT), and Security Force Training. It also forms the primary emergency divert base during NTTR exercises.

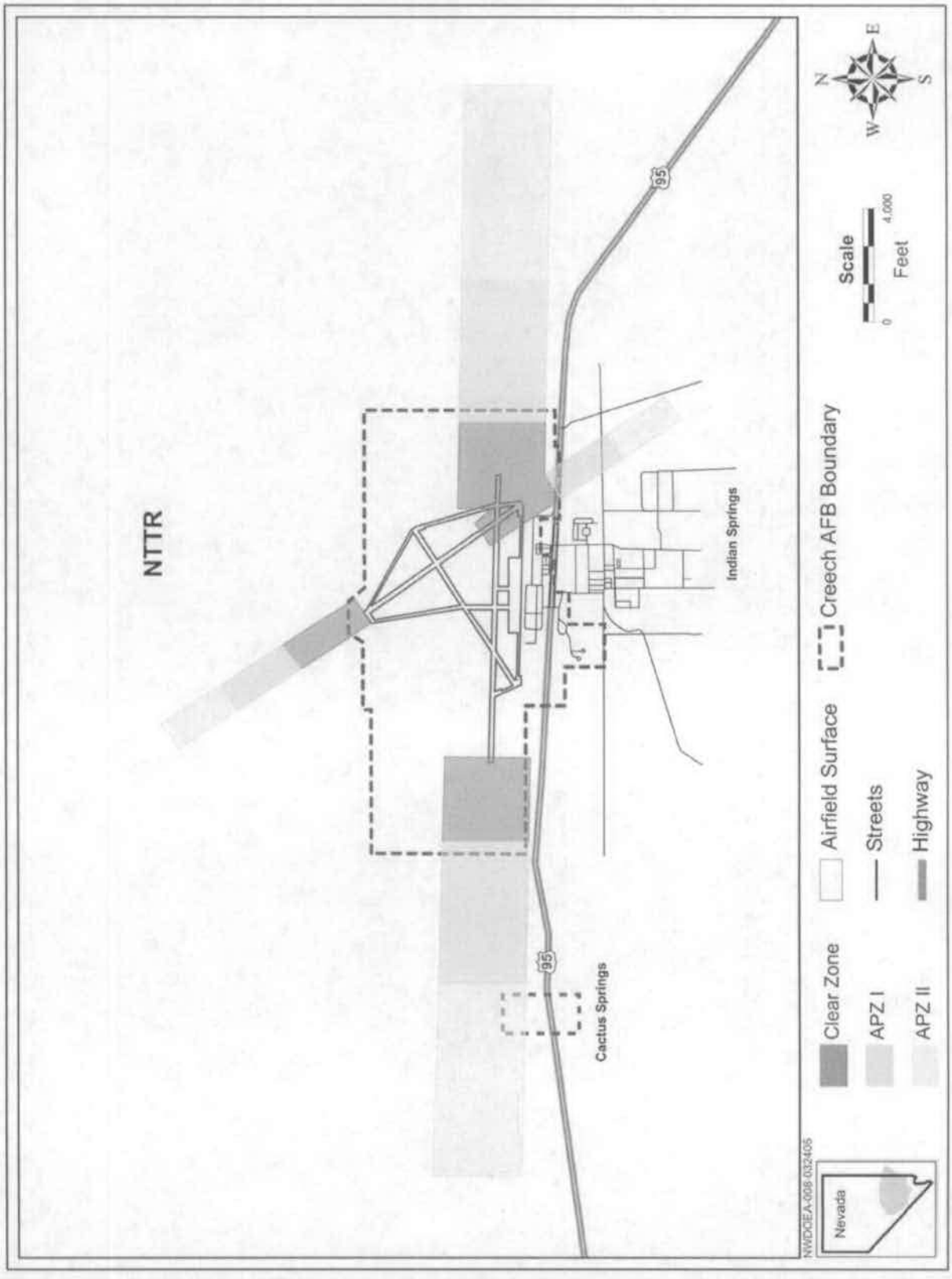


Figure 3-5 Creech AFB Clear and Accident Potential Zones

Aircraft operations and maintenance facilities at Creech AFB lie south of the main runway developed area of the base. Facilities including a wastewater treatment plant and storage buildings are situated north of the runway. The main base area contains several industrial land uses (i.e., supply, vehicle maintenance, and transportation facilities) as well as the base exchange, dining hall, and temporary lodging facilities (Table 3-7).

Table 3-7 Existing Land Use at Creech AFB

Land Use Category	*Percent Acreage*	*Percent of Total*
Airfield	227.24	9.55
Aircraft Operations and Maintenance	18.71	0.79
Industrial	193.11	8.12
Administrative	2.63	0.11
Community (Commercial)	0.39	0.02
Community (Service)	3.30	0.14
Medical	0.62	0.03
Temporary Lodging	5.81	0.24
Recreation	8.50	0.36
Open Space	1,918.89	80.65
Total	*2,379.20*	*100.00*

Source: NAFB 2003a

A Functional Relationships Analysis conducted for Creech AFB evaluated the spatial relationships among the land uses found on the base, and defined incompatible land uses. Although the analysis determined that most of the land uses at Creech AFB meet requirements, some incompatibilities exist concerning the proximity of temporary lodging and medical land uses to the airfield and to adjacent industrial facilities (NAFB 2003a).

NTTR. The range encompasses about 2.9 million acres of public lands withdrawn for military activities. As noted previously, NTTR is divided into the North and South Ranges. Most of this vast area consists of open lands, with a relatively small number of acres accounted for by targets, infrastructure, and facilities. Such facilities within the NTTR include TTR, Tolicha Peak ECR, Point Bravo, and Silver Flag Alpha. The Air Force manages these lands under plans developed in cooperation with the BLM (NAFB 1999b). For the portion of the NTTR within the Desert National Wildlife Range, the USFWS manages land use, even though it supports Air Force targets, infrastructure, and training (NAFB 1999b).

TTR. This test range covers approximately 336,000 acres of withdrawn land in the northern portion of NTTR. Activities on TTR include projectile firings, ground-launched rockets, explosion effect tests, and a variety of other research and development projects. Most of TTR consists of safety zones and buffer areas, but it also contains lands supporting:

- Dining facilities;
- Overnight housing for site personnel;
- An airfield and air transportation terminal;

- Administration and range control offices;
- Emergency services such as fire stations;
- Vehicle maintenance shops;
- Facilities maintenance shops including woodworking shops, sign shops, electrical/communication shops, boiler and generator maintenance shops;
- Vehicle refueling areas;
- Fuel storage areas; and
- Aggregate quarries.

Situated around the flightline, these facilities account for less than 10 percent of the TTR.

3.4.2 Environmental Consequences

To evaluate the significance of impacts to land use, the proposed action would need to adversely impact and/or change existing land uses, management, and/or land ownership.

Proposed Action

Nellis AFB. Land use on base would not be negatively impacted by the proposed WINDO projects. The proposed action calls for new on-base facilities and the demolition of older on-base facilities as well as numerous maintenance and repair activities. The proposed infrastructure improvements would be sited to ensure compatibility with existing and proposed on-base land uses and in accordance with the Nellis AFB general plan (NAFB 2003a).

Siting of new facilities would avoid locations such as cultural resources, sensitive habitat, safety zones, and environmental restoration program sites. In addition, Nellis AFB anticipates that new construction, expansion, and installation would occur on previously disturbed ground and within the base environs. Therefore, all infrastructure projects would be consistent with existing land uses, management, and ownership, and conform to plans and regulations and not present an adverse or significant impact if they were implemented at Nellis AFB.

Creech AFB. Proposed WINDO projects at Creech AFB would not conflict with existing land uses or management plans and would occur within areas of compatible land use, outside safety zones, and away from sensitive locations. Neither existing nor future land use, management, or ownership would be negatively affected by the WINDO projects and no significant impacts are anticipated.

NTTR. Only minor construction is proposed for NTTR. These proposed projects would be dispersed among different locations across a wide geographic area. All projects would be consistent with existing

land uses, management, and/or ownership and not present an adverse or significant impact if they were implemented at NTTR.

TTR. Most of the proposed WINDO projects at TTR would consist of demolishing unused and unnecessary civilian camp buildings. Removal of these buildings would, for the foreseeable future, create open space. Such space would remain consistent with land uses within TTR. Both of the proposed construction projects at TTR would occur within the main developed area in previously disturbed locations and amongst compatible land uses. No significant or adverse impacts to land use at TTR is anticipated because no change to existing land uses, management, and ownership would occur.

No-Action Alternative

Under the no-action alternative, no changes to land use would occur at Nellis AFB, Creech AFB, NTTR, and TTR. Existing conditions to land uses at these locations would remain if this alternative were selected.

3.4.3 Cumulative Effects

As demonstrated above, proposed WINDO projects would not result in individual negative impacts to land use at any of the four main areas: Nellis AFB, Creech AFB, NTTR, and TTR. For this reason, and because the areas are geographically separated, no potential exists for combined, synergistic effects.

3.5 UTILITIES

Utilities resources for this analysis include electric and natural gas utilities, potable water systems, and wastewater treatment systems for Nellis AFB, Creech AFB, NTTR, and TTR.

3.5.1 Affected Environment

Nellis AFB

Electric Power and Natural Gas. The Nevada Power Company (a subsidiary of Sierra Pacific Rsources) provides electric power to the base. Power is distributed throughout the base via 718,319 linear feet (LF) of above-ground cable, and another 1,175,415 LF of underground cable. Pole and pad-mounted transformers step down the 12.47 kilovolts (kV) power to the voltages that are required by the various facilities. Nellis AFB has indicated that the electrical system needs to be upgraded to provide future projected demand (NAFB 2003a). The Southwest Gas Corporation provides natural gas to Nellis AFB. The Southwest Gas Company supply line distributes gas to areas of the base via 206,000 LF (almost 40 miles) of polyethylene pipelines. The base maintains three 1,000-cubic-foot cylinder tanks of natural-gas

storage to refuel government vehicles. Supply from both companies will be adequate to meet existing and projected demand (NAFB 2003a).

Potable Water. Nellis AFB's potable water sources include nine government-owned and operated wells and water purchased from Southern Nevada Water Authority via bulk-supply pipelines from Lake Mead. A small quantity is also purchased from the City of North Las Vegas Water District. Approximately 29 percent of the Nellis AFB water supply comes from groundwater. Nellis AFB is allotted 7.1 million gallons per day (gpd) of surface and ground water (personal communication Patras 2005). There are nine potable water storage tanks at Nellis AFB. The total existing potable water storage is 7.5 million gallons. Nellis AFB average daily water usage varies between 2.5 million gpd in between October and April to 5.4 million gpd from May to September (NAFB 2003a).

Wastewater Treatment. Nellis AFB discharges approximately 1.5 million gpd of sanitary sewage from the base to the Southern Nevada Water Authority for treatment. This equates to about 90 to 95 percent of the base sanitary sewage. Industrial wastewater (i.e., aircraft wash water) from the flightline is also discharged through the sanitary sewer system to the Clark County Sanitation District for treatment with the sanitary wastewater (NAFB 2003a). The treated sewage is released into the Las Vegas Wash where it flows underneath Lake Las Vegas eventually emptying into Lake Mead (NAFB 1999a).

Creech AFB

Electric Power and Natural Gas. The Nevada Power Company provides electrical power to Creech AFB. The electrical distribution system at Creech AFB consists of a 2,400/4190 volt feeder. Power is provided to the feeder through a single 13.8/41.6 kV, 5 megavolt-ampere transformer to one of three circuit breakers located in a Nevada Power substation (NAFB 2003a). The existing electrical substation is equipped with a voltage regulator and provides three circuits for base power distribution. A loop feed is utilized for a large part of the Creech AFB circuit. In addition, Creech AFB operates six standby power units and three equipment authorization inventory data systems for emergency operations. In 2001, the Creech AFB electrical distribution system was considered degraded, due to the system's age and condition. Additionally, the Creech AFB standby power systems were consider unsatisfactory and not in compliance with ACC standards (NAFB 2003a). There is no natural gas system on Creech AFB.

Potable Water. The Creech AFB water system includes three wells, a liquid chlorine treatment system, a 150,000-gallon water tank, and an old 50,000 non-operational tank. Wells 62-1, 106-2, and Creech AFB Well 3 provide potable water to the base. The wells are monitored for compliance with drinking water standards on a regular basis by personnel from the Bio-environmental Group at Nellis AFB (NAFB 1998a). In 2001, the system treated approximately 88,000 gpd. Daily usage in 2001 was approximately 95 gpd per person (NAFB 2003a). The existing polyvinyl chloride piping and 150,000-gallon storage reservoir are considered adequate to meet the current water demands at Creech AFB (NAFB 2003a). The Air Force has authorization from the State of Nevada Engineer to pump a total of approximately 62.7

million gallons per year (gpy) from the three groundwater wells. Current demand on the Creech AFB water supply system is estimated at an annual average of 88,000 gpd (approximately 32 million gpy), or 51 percent of its total capacity for municipal and industrial uses.

Wastewater Treatment. Creech AFB wastewater flows through a gravity collection system to an activated sludge treatment plant. Treated wastewater discharges to the groundwater of the State of Nevada via evaporation/percolation ditches (NAFB 2003a). Treated effluent is held in percolation basins that are used to recharge groundwater supplies. The plant has a design capacity of 90,000 gpd. In 2003, the plant operated at approximately 22 percent of capacity, treating 20,000 gpd, with peak flows of approximately 30,000 gpd (NAFB 2003a). Creech AFB maintains a wastewater collection system that collects and transfers wastewater to the influent pumping station. Upgrades to the influent pump station in recent years included the addition of valves, a valve volt, and an alarm system (NAFB 2003a). Creech AFB has a looped recovery system for industrial wastewater. A National Pollutant Discharge Elimination System (NPDES) general permit (GNV00022233) has been issued to Creech AFB for contaminates from range activities that have the potential to be moved from surface water flows into stream channels (NAFB 2005).

NTTR

Electric Power and Natural Gas. The Sierra Pacific Power Company supplies electrical power to Tolicha Peak ECR (NAFB 1998a). External combustion (i.e., boiler) systems are installed to provide building heat and diesel fueled generators are used to supply standby electrical power to critical operations. Stationary generators are used for ensuring an uninterrupted water supply and emergency electrical power during periods when power is lost from the electrical grid (NAFB 2004c). There is no natural gas system at Tolicha Peak ECR.

Potable Water. Tolicha Peak ECR has one groundwater well - TPECR #1. Annual metered historic groundwater use water use as reported in 1997 totaled 9.41 acre feet per year (afy) or just over 3 million gpy (NAFB 1998a).

Wastewater Treatment. Tolicha Peak ECR is served by a septic tank and leach field; a NPDES permit for these facilities are not required (personal communication Roe 2005).

TTR

Electric Power and Natural Gas. The Sierra Pacific Power Company supplies electrical power to DOE facilities at the TTR via two supply lines. One is 120 kV, and a backup line is 60 kV. Sierra Pacific transformers step the voltage down to 13.8 kV for the DOE distribution system. The remaining power line supplies the Air Force facilities. All remote operations are supplied with electrical power by portable generators (DOE 1996). There is no natural gas system on TTR.

Potable Water. Five water wells (BLM, EH-7, EH-2, 3A, and 3B) drilled on or near TTR provide water supply to the TTR. The wells are monitored for compliance with drinking water standards on a regular basis by personnel from the Bio-environmental Group at Nellis AFB. Two additional wells (Sandia Well 6 and Sandia Area 9) are monitored by Sandia/DOE. Annual metered historic groundwater use at TTR reported in 1997 totaled 106.5 afy or 34.7 million gallons per year (gpy) (NAFB 1998a).

Wastewater Treatment. Sewage at the TTR is collected and pumped to the wastewater treatment unit (aerated facultative lagoons) located approximately 1.5 miles southwest of the main gate. Effluent lines and three lift stations connect all DOE and Air Force facilities to the wastewater treatment unit. This treatment unit is designed to treat raw sewage in compliance with secondary treatment standards. Treatment is accomplished by an aerobic stabilization pond, followed by two parallel evaporation basins. The system allows for final disposal of the wastewater by evaporation and percolation. Five septic tanks are still in use at remote locations. These remote septic tanks are occasionally pumped into vacuum trucks and transported off site for ultimate disposition (DOE 1996). Permitted capacity is 0.375 million gallons per day for a 30-day average. TTR operates under a NPDES general permit (NEV20001) as issued and administered by the Nevada DEP (Roe 2005).

3.5.2 Environmental Consequences

Proposed Action

Nellis AFB. An increase in electrical use would be anticipated as a result of the overall increase in facility space. Under the proposed action, 77 new construction projects; 23 demolition projects; and 379 various repair and maintenance projects would be implemented within 3 years. New facility construction would likely employ energy-conserving equipment to reduce the impact on the existing electrical infrastructure. The current electrical system capacity would be adequate to meet the new requirements. Demand for potable water and natural gas is not expected to dramatically increase during or after implementation of the proposed action as no increase in personnel would be expected to occur. An increase in wastewater flows would occur as a result of the increase in facility space. No adverse or significant impacts to wastewater treatment would be anticipated under the proposed action at Nellis AFB.

In order to evaluate utility demand, Scenarios 1 and 2 were adopted—it was assumed that 50 people would be added (200 square feet per person with only one-third of the area occupied by people) under Scenario 1 and 250 people under Scenario 2. Table 3-8 illustrates utility demand should the number of personnel at Nellis AFB increase. Under both scenarios, demand for utilities would increase by an average of 0.4 percent (Scenario 1), while Scenario 2 would see an increase in demand of approximately 2.2 percent.

Table 3-8 Comparison of Nellis AFB Projected Average Daily Utility Use				
	Electricity kWh/day	*Natural Gas cft/day*	*Potable Water gpd*	*Sanitary Wastewater Gpd*
Nellis AFB-currently	71,487	2,468,700	3,950,000*	1,275,300
*Scenario 1***	71,793	2,479,250	3,955,000	1,280,750
*Scenario 2***	73,015	2,521,450	3,975,000	1,302,550
*averages the Nellis AFB annual usage–refer to section 3.5.1 **Multipliers are: electricity—6.11 kWh/person/day (Alfred University 2005); natural gas—211 cft/person/day (Nationmaster 2005); potable water—100 gpd/person; and sanitary wastewater 100 gpd/person				

The Nevada Power Company is projected to distribute over 19,200 gigawatt hours (i.e., 19,200,000 kWh) to approximately 1.5 million people in southern Nevada in 2005. Due to the increasing population and development in the region, the utility company anticipates on average growth rate of 1.9 percent through 2020. To keep up with the projected demand, the Nevada Power Company has planned the construction and modification of several facilities in the future. In addition, the company is able to purchase electricity from other regional power companies (NSOE 2005). Nellis AFB would have very little adverse impact on electrical consumption in the region now and into the distant future when compared to the millions of kWh used annually in the City of Las Vegas.

The Southwest Gas Corporation has experienced no problems in meeting demands in southern Nevada and as such has no plans for future development. In fact, customer demand for natural gas has been declining in the region in the past several years (NSOE 2005). The demand for potable water would continue to increase as population of Nellis AFB grows; however, the current supply is more than adequate to meet demand under the scenarios presented. In order to reach or exceed the current allotment using the average annual usage noted in Table 3-9, the population of Nellis AFB would have to double in size. There are no known impediments to wastewater treatment capacity in the near or distant future. The Southern Nevada Water Authority has proposed construction of and improvements to regional wastewater facilities in future years to accommodate projected regional population growth (SNWA 2005).

In summary, personnel increases at Nellis AFB would increase the demand for utilities; however, the base has adequate storage capacity and would receive sufficient supplies of electricity, natural gas, and potable water to meet existing and future demand.

Creech AFB. An increase in electrical use would be anticipated as a result of the overall increase in facility space. Under the proposed 17 construction, 3 demolition, and 88 various repair and maintenance projects would be implemented at Creech AFB. New facility construction would employ energy conserving equipment to reduce the impact on the existing electrical infrastructure and proposed electrical system upgrades. Current system capacity would be adequate to meet the new requirements. Demand for potable water is not expected to have an adverse impact as no increase in Creech AFB personnel would

occur under the proposed action. An increase in wastewater flows would occur as a result of the increase in facility space; however, no adverse impacts to wastewater treatment would be anticipated under the proposed action. The State of Nevada has authorized pumping of a total of approximately 62.7 million gpy from the three wells at Creech AFB. Implementation of the proposed action may temporarily increase the water demand at Creech AFB during construction. However, this increase would be within the State allocation for the Creech AFB wells and would not substantially affect the water supply.

NTTR. Under the proposed action, a total of 4 construction and 11 other various repair and maintenance projects would be implemented on the NTTR. Adverse impacts to electrical supplies at Tolicha Peak ECR would not be expected through implementation of the proposed action as no large scale facility construction would occur. Current system capacity would be adequate to meet the new requirements. Demand for potable water would not be expected to have an adverse impact as there would be no increase to personnel assigned to Tolicha Peak ECR. No increase to wastewater flows or wastewater treatment would be anticipated under the proposed action.

Adverse impacts to electrical supplies would not be expected through implementation of the proposed action at Point Bravo as no large scale facility construction would occur. Current system capacity would be adequate to meet the new requirements. Demand for potable water would not be expected to have an adverse impact as there would be no increase of assigned personnel. No increase to wastewater flows or wastewater treatment would be anticipated under the proposed action.

TTR. An increase in electrical use would be anticipated as a result of the addition of three proposed new facilities. New facility construction would employ energy conserving equipment to reduce the impact on the existing electrical infrastructure and proposed electrical system upgrades. Current system capacity would be adequate to meet the new requirements. Demand for potable water is not expected to have an adverse impact as no increase in TTR personnel would occur under the proposed action. An increase in wastewater flows would occur as a result of the increase in facility space; however, no adverse impacts to wastewater treatment would be anticipated under the proposed action.

No-Action Alternative

Under the no-action alternative, no changes to infrastructure or utility usage would be expected to occur at Nellis AFB, Creech AFB, NTTR, and TTR. Infrastructure upgrades associated with the proposed action would not be implemented which could affect the Air Force mission readiness at any or all locations.

3.5.3 Cumulative Effects

Numerous projects would be implemented at geographically separate locations within the same relative timeframe; however, at each location the potential environmental affect would not be adverse. Therefore, cumulative effects to this resource through implementation of the proposed action at all locations would not be expected to have an adverse impact. Electrical and water usage would be expected to increase at Nellis AFB and Creech AFB; however increased demand would not exceed supply.

3.6 SOCIOECONOMICS

Socioeconomic resources are defined as the basic attributes associated with the human environment, particularly population and economic activity. Population is described by the change in magnitude, characteristics, and distribution of people. Economic activity is typically composed of employment distribution, personal income, and business growth. Socioeconomics for this EA focus on the general features of the local economy that could be affected by the proposed action or alternative.

3.6.1 Affected Environment

Nellis AFB. Las Vegas and Clark County comprise the affected environment for Nellis AFB. Clark County's population grew from 741,459 in 1990 to 1, 375,765 in 2000. The total number of employed persons in Clark County was 578,459 in 1990 and 688,917 in 2000 (USCB 2005). While the total population increased by about 46 percent, the number of employed persons grew approximately 8.4 percent in the 10-year period. Las Vegas comprised nearly 35 percent of the total population of Clark County (USCB 2005).

Nellis AFB is among the area's largest employers in southern Nevada. An average of 10.7 percent of Clark County residents commutes to work with an average commute time of 24 minutes (USCB 2000). In fiscal year 2001, Nellis AFB had financial outlays of $404 million. A total of approximately 11,690 personnel comprise the workforce at Nellis AFB. The total annual payroll was more than $668 million in 2004 (NAFB 2004d).

Creech AFB. The affected environment for socioeconomics is the town of Indian Springs. The community of Indian Springs has few employment opportunities with the exception of the combined elementary/middle/high school, the county branch library, and highway services. Nearly all residents of the community work elsewhere with an average commute time of 38 minutes. Approximately 12 percent of the working residents of the community are employed outside Clark County, primarily in neighboring Nye County (Nellis AFB 2003a). The population of Indian Springs in 2000 was 1,302 (USCB 2005); however, July 2004 population estimates indicate the population grew to 1,661 (NSBDC 2005).

The primary economic influence in the area is the Creech AFB and other DoD (i.e., Nevada Test Site [NTS]-related activities) and DOE Nevada Test Site (NTS) range and facility operations in the region. In 2003, Creech AFB had 1,157 assigned personnel (Nellis AFB 2003a). The Southern Desert Correctional Center (SDCC) and Indian Springs Conservation Camp and Boot Camp located just east of the community of Indian Springs and Creech AFB provide additional influence on the local economy through employees and inmate visitors.

NTTR and TTR. The majority of personnel working in the north range facilities (e.g., Tolicha Peak ECR) and TTR live in Clark or Nye counties. Generally, personnel working at these locations live in communities such as Beatty, Tonopah, or Indian Springs and commute daily. At TTR, there are approximately 250 military and civilian personnel conducting aeronautical research and development.

3.6.2 Environmental Consequences

Proposed Action

Nellis AFB. Construction activity on Nellis AFB under the proposed action would add expenditures of over many millions of dollars over the next few years. It is estimated that these expenditures would support nearly 380 infrastructure and 100 construction/demolition projects. Construction activity would contribute to the local economy although the potential effects would be minor and temporary. Construction costs under the proposed action would be minor in comparison to the billions of dollars generated in the Las Vegas region.

Creech AFB. Construction activity on Creech AFB under the proposed action would have expenditures of over several million dollars over the next few years. It is estimated that these expenditures would support a total of 20 construction/demolition projects in addition to 88 various repair and maintenance projects. Construction activity would contribute to the local economy although the potential effects would be minor and temporary.

NTTR and TTR. Construction activity at NTTR and TTR under the proposed action would have expenditures of several millions of dollars over the next few years. Construction activity would contribute to the local economy of Nye County, and to a lesser degree Clark County, although the potential effects would be minor and temporary. Construction activity would contribute to the local economies of these smaller, rural towns, although the potential effects would be temporary and minor.

No-Action Alternative

Under the no-action alternative, the proposed infrastructure projects at Nellis AFB, Creech AFB, NTTR, and TTR would not be implemented. Additional input into the local economy due to demolition or construction costs would not be expected and no changes to the local or regional economies would occur.

3.6.3 Cumulative Effects

Implementing the proposed action simultaneously at Nellis AFB, Creech AFB, NTTR and TTR would not result in adverse socioeconomic impacts to Las Vegas, Indian Springs, and Clark and Nye Counties. Construction and personal spending over the 3-year construction period would result in short term economic benefits to the region; however, due to the bustling economy of the Las Vegas area any positive input is shadowed in comparison. Due to the distance from the NTTR and TTR infrastructure improvements, it is unlikely that there would be synergistic effects found at Nellis AFB and Creech AFB.

3.7 TRANSPORTATION

Transportation refers to the movement of vehicles throughout a road and highway network. Primary roads, such as major highways, are principal arterials designed to move traffic and not necessarily to provide access to all adjacent areas. Secondary roads feed arterials that collect traffic from common areas and transfer it to primary roads.

3.7.1 Affected Environment

Nellis AFB. Access to Nellis AFB is provided via eastbound, four-lane Craig Road from Interstate 15 (I-15) to the Main Gate, or from the northeast or southwest via Las Vegas Boulevard. Nellis Boulevard, a six-lane, north-south roadway, also permits access to the base's Tyndall Avenue Gate. Daily bus service to the Main Gate and base hospital is provided by the Citizens Area Transit (CAT) system.

A Nellis AFB infrastructure study conducted in January 2001 concluded that of the approximately 147 land miles of base roadway pavement, 98 percent were rated satisfactory (Nellis AFB 2003a). As reported, some of the road intersections meet at 45-degree angles which could present a potential safety concern for motorists unfamiliar with the layout. The study recommended reengineering of the 45-degree angle intersections to improve safety. The study also recommended that the base consider establishing shuttle bus service to reduce base traffic congestion. A parking study conducted in 2001 focused on parking discrepancies in the area along Tyndall Avenue near the flightline. The study concluded that automobile parking facilities were abundant; however, in many cases, parking lots were not conveniently located near the buildings they serve and many parking areas were underused. The parking study recommended evaluation of existing parking areas for alternative uses (Nellis AFB 2003a).

Creech AFB. Due to its remote location, the roadway network surrounding Creech AFB is minimal. Access to Creech AFB is via I-95, directly south of the base Main Gate. A few local roads exist to serve the community of Indian Springs, south of the Creech AFB Main Gate. The remaining roadways in the region provide limited access to homes, ranches, and federal lands (NAFB 2003b). The Creech AFB roadway network includes streets, parking areas, and miscellaneous pavements. The January 2001 Infrastructure Program Review of Roadway Pavement Systems at Creech AFB reported that the overall engineering condition assessment rating of the pavement system was "adequate" (NAFB 2003a).

NTTR. Main access to the Tolicha Peak ECR facility in the North Range is via a paved road from I-95. The intersection of this access is about 20 miles north of the town of Beatty. Main access to Point Bravo on the south range is via I-95 approximately 34 miles northwest of Las Vegas.

TTR. The primary highway access to the main entry gate of the Tonopah Test Range is via I-6 to north-south alternate Road 504. I- 6 links I-95 and I-93 and is an all-weather, two-lane paved roadway. A total of 298 miles of roads on the TTR are used on a regular basis (DOE 1996). TTR consists of 118 miles of primary paved roads, 23 miles of secondary paved roads, 113 miles of primary compacted dirt roads, and 39 miles of secondary dirt roads. The two primary traveled paved roads on the TTR traverse north-south and east-west. These roads support the majority of the daily traffic, as well as traffic during operations. The dirt roads are used for secondary daily travel, but are primarily used during testing activities.

The roadway system on the TTR is jointly maintained by the DOE and the Air Force. No personally-owned vehicles are permitted on the site. Workers either drive government-supplied vehicles from the main entry of the TTR or ride government-supplied bus transportation to the work site. The majority of the on-site traffic is attributed to security support and facility operations (DOE 1996).

3.7.2 Environmental Consequences

Proposed Action

Nellis AFB. Construction-related traffic off I-15 would be short-term and temporary and the transportation system would experience negligible affect. Construction-related traffic on the base would have an adverse impact over the course of up to 3 years due to the over 470 projects proposed under the proposed action. Traffic levels on the base would be moderate to high during the construction period. Effects of projects under the proposed action on existing transportation resources would be noticeable.

Employment on the base in 2004 was approximately 11,670 jobs of which approximately 9,340 employed persons (i.e., active duty military and civilians) lived off base. Data collected by the Bureau of Transportation Statistics indicate approximately 87 percent of vehicular travel is via personal vehicle. This percentage has been used to estimate the potential for approximately 8,126 vehicle trips during each

peak travel period in the vicinity of and at Nellis AFB (BTS 2001). In order to evaluate the impact to vehicular volume at Nellis AFB should personnel increase under the two scenarios, an assumption was made that nearly 80 percent of the additional personnel would live off base. The BTS vehicular travel percentage was then applied to the off-base personnel to determine the additional traffic in and around Nellis AFB. Based on this approach, Nellis AFB could see an increase of vehicular traffic on Nellis AFB by 35 vehicles under Scenario 1 and 174 vehicles under Scenario 2 during peak travel periods.

Overall, I-15 would be able to accommodate the anticipated level of traffic. The Nellis AFB roadways would be able to accommodate the anticipated level of traffic associated with construction equipment and employees; however, the increased levels may create congestion during peak traffic periods. A traffic study is currently being conducted for Nellis AFB. The study is expected to be completed in early 2006. This study will provide up-to-date typical vehicle volumes, indicate areas of congestion on the base, and suggest measures to mitigate these congestion problems.

Creech AFB. Construction-related traffic would be short-term, temporary, and take place on I-95. There would be minimal affects to this resource over the 3 years of construction. Traffic levels would be low during the construction period. Effects of projects under the proposed action on existing transportation resources would not be measurable or noticeable.

NTTR. Construction-related traffic would be short-term, temporary, and take place on I-95. There would be minimal affects to this resource over the 2 years of construction. Traffic levels would be low during the construction period. Effects of projects under the proposed action on existing transportation resources would not be measurable or noticeable.

TTR. Construction-related traffic would be short-term, temporary, and take place primarily on I-6 and publicly restricted access roads. There would be minimal affects to this resource over the 3 years of construction. Traffic levels would be low during the construction period. Effects of projects under the proposed action on existing transportation resources would not be measurable or noticeable.

No-Action Alternative

No impact would be expected under this alternative. None of the proposed projects would be implemented at any of the locations; therefore there would be not increase in construction-related traffic to the site. No impacts to transportation resources would occur.

3.7.3 Cumulative Effects

The only adverse impact to transportation resources would be on Nellis AFB due to the influx of construction vehicles on the base. The affect from simultaneously implementing the proposed action at

four geographically separate locations within the Nye and Clark County/Las Vegas area would not adversely impact local or regional transportation networks. Traffic levels on I-15 and I-95, when compared with development projects in the region, would not be measurable or noticeable.

3.8 BIOLOGICAL RESOURCES

Biological resources encompass plant and animal species and the habitats within which they occur. Plant species are often referred to as vegetation and animal species are referred to as wildlife. Habitat can be defined as the area or environment where the resources and conditions are present that cause or allow a plant or animal to live there (Hall *et al.* 1997). Biological resources for this EA include vegetation, wetlands, wildlife, and special-status species occurring in the vicinity of the proposed infrastructure improvement projects.

Vegetation includes all existing upland terrestrial plant communities with the exception of wetlands or special-status species. The affected environment for vegetation includes those areas subject to demolition and construction ground disturbance.

Wetlands and Waters of the United States. Wetlands are considered special category sensitive habitats and are subject to regulatory authority under Section 404 of the Clean Water Act and Executive Order 11990 *Protection of Wetlands.* They include jurisdictional and non-jurisdictional wetlands. Jurisdictional wetlands are those defined by the United States Army Corps of Engineers (USACE) and USEPA as those areas that meet all the criteria defined in the USACE's 1987 *Wetlands Delineation Manual* and under the jurisdiction of the USACE (USACE 1987). Wetlands are generally associated with drainages, stream channels, and water discharge areas (natural and man-made). The discussion on wetlands pertains to the potential to affect wetlands due to construction or demolition activities under the proposed action.

Wildlife. Wildlife includes all vertebrate animals with the exception of those identified as threatened or endangered or sensitive. Wildlife includes fish, amphibians, reptiles, birds, and mammals. For the purposes of this EA wildlife includes all vertebrate animals (i.e., fish, amphibians, reptiles, birds, and mammals) with the exception of those identified as threatened, endangered, or sensitive species. Wild horses and burrows are also included and protected by PL 92-195, the Wild Free-Roaming Horse and Burrow Act of 1971, as amended. Wildlife potentially affected by demolition and construction activities and construction noise will be discussed.

Special-Status Species. Special-status species are defined as those plant and animal species listed as threatened, endangered, or proposed as such by the USFWS. The federal Endangered Species Act (ESA) protects federally listed, threatened, and endangered plant and animal species. Species of concern are not protected by the ESA; however, these species could become listed and protected at any time. Their consideration early in the planning process could avoid future conflicts that might otherwise occur. The

discussion of special-status species focuses on those species with the potential to be affected by demolition, construction, and construction-related noise.

3.8.1 Affected Environment

The affected environment for biological resources includes those areas within each location potentially affected by ground-disturbing activities such as demolition, construction, or infrastructure development. All baseline data were gathered from previous studies such as the *Integrated Natural Resource Management Plan for Nellis Air Force Base* (NAFB 1999a) and *Renewal of the Nellis Air Force Range Land Withdrawal Legislative Environmental Impact Statement* (NAFB 1999b), and *Nevada Training Initiative Environmental Assessment* (NAFB 2003e).

Nellis AFB

Vegetation. Nellis AFB is located in the Mojave Desert. Large expanses of the valley floors in the Mojave Desert support the creosote bush (*Larrea tridentate*)-white bursage (*Ambrosia dumosa*) desert scrub community. The creosote bush and white bursage dominate plant communities at elevations from below sea level to about 3,940 ft (NAFB 1992b; Hazlett et *al.* 1997). This desert scrub community, characteristic of much of the Mojave Desert can still be found in the less developed areas of Nellis AFB, such as the eastern portion of Area II. This area is dominated by a wide variety of native vegetation such as cottonwood (*Populus fremontii)* and mesquite (*Prosopis glandulosa P. pubescens).* Tamarisk or salt cedar (*Tamarix* spp.) is an introduced, non-native perennial plant species that has had a notable effect on plant associations. Tamarisk is known for releasing salt into surrounding soils which, in combination with the plant's aggressive growth and colonization, often results in establishment of monospecific and dense stands that often preclude establishment of native species. Non-native drought-tolerant deciduous trees and shrubs, evergreen trees and shrubs, perennials, ground covers, vines, and grasses have also been planted throughout the base. They are contained mostly within and adjacent to developed areas at the base (NAFB 1999a). Las Vegas bearpaw poppy (*Arctomecon californica*) and Las Vegas buckwheat (*Eriogonum corymbosum*), both plant species of concern, are present on gypsiferous soils in three different locations on Nellis AFB. These two plant species are discussed in detail in the special-status species section under Nellis AFB.

Wetlands and Waters of the United States. The only potential wetlands on Nellis AFB are the golf course ponds. The USACE personnel have determined that these man-made water sources are not subject to wetlands protection under the provisions of the Clean Water Act because they are man-made and the water source is not natural (NAFB 1999a). Because the Las Vegas Wash is connected to the Colorado River, any ephemeral streams and washes eventually emptying into the Las Vegas Wash would be considered jurisdictional under Section 404 of the Clean Water Act. Any action that would result in the placement of fill in those streams would require coordination with the USACE (NAFB 1999a).

Wildlife. Due to its location adjacent to metropolitan Las Vegas and previous development and construction activities, Nellis AFB is primarily an urban environment with some relatively undisturbed lands lying to the east and north of the base. Wildlife species found on base are mostly limited to those that have adapted to high levels of human activity and disturbance. Three general habitat types are present on the base: urban areas, open space recreation (e.g., golf course), and native desertscrub vegetation. Common bird species in the urban areas include house finch and house sparrow. Open spaces are frequented by American coot (*Fulica americana*), horned lark (*Eremophila alpestris*), great-tailed grackle (*Quiscalus mexicanus*), and domestic geese and ducks. The areas with the most diverse wildlife are those containing native desertscrub vegetation. Area II (refer to Figure 1-2) comprises the most undisturbed native desertscrub habitat on the base. Coyote (*Canis latrans*), Gambel's quail (*Callipepla gambelii*), mourning dove (*Zenaida macroura*), desert spiny lizard (*Sceloporus magister*), and side-blotched lizard (*Uta stansburiana*) are common wildlife species found in the vicinity of the base (NAFB 1999a).

Special-Status Species. Only one federally listed animal species, the desert tortoise (*Gopherus agassizii*), is present on the base in low densities in undeveloped portions of Area II. The desert tortoise was listed by the USFWS as threatened on April 2, 1990. It is the largest reptile in the arid southwestern U.S. Tortoises spend much of their lives in underground burrows they excavate to escape the harsh summer and winter desert conditions. They usually emerge in late winter or early spring and again in the fall to feed and mate, although they may be active during summer when temperatures are moderate. Desert tortoises are herbivorous, eating a wide variety of herbaceous vegetation, especially flowers of annual plants. Historically the tortoise occupied a variety of desert communities in southeastern California, southern Nevada, western and southern Arizona, southwestern Utah, and through Sonora and northern Sinaloa, Mexico. Today it can still be found in these areas, although the populations are fragmented and declining over most of its former range (NAFB 1999a).

Two plant and four other animal species of concern have been observed or occur on Nellis AFB. These are the Las Vegas bearpoppy, Las Vegas buckwheat, chuckawalla (*Sauromalus obesus*), western burrowing owl *(Athene cunicularia)*, banded Gila monster (*Heloderma suspectum cinctum*), and phainopepla (*Phainopepla nitens*). Four populations of Las Vegas bearpoppy have been located on Nellis AFB: three populations in Area II and one population in Area III. In 1996, Area II had approximately 1,300 plants and Area III had the largest population with "thousands of plants" (NAFB 1999a). The poppy populations are found exclusively on gypsiferous soils. The Las Vegas buckwheat is another rare species observed and documents on Nellis AFB. The chuckwalla, a large lizard, has been confirmed due to presence of scat on the rocky hillsides of the eastern portion of Area II. The chuckwallas inhabit rocky hillsides, talus slopes, and rock outcrops in areas dominated by creosote. Rocks and their associated crevices provide shelter and basking sites. The western burrowing owls, is a species native to southern Nevada that adapts well to urban environments. The owl prefers flat, previously disturbed areas like those found around the southern boundary of Nellis AFB, including edges

of concrete flood control channels, for the excavation their burrows. The banded Gila monster is one of the few venomous lizards in the world. None of these three species (chuckwalla, western burrowing owl, Gila monster) have been observed at Nellis AFB although they are known to be present in the area (NAFB 1999a). Phainopepla, a passerine species, favors mesquite groves such as those found in the Desert Wells Annex area located four miles west of Nellis AFB.

NTTR/North Range

Vegetation. Tolicha Peak ECR is located in the North Range; a transitional area between the Mojave Desert and Great Basin that supports a mixture of community types, including creosote bush scrub, Joshua tree woodland, pinyon-juniper woodland, mixed desert scrub community, Great Basin sagebrush scrub, black sagebrush scrub, and a sparsely vegetated rock outcrop community (NAFB 1999a). Farther north, the North Range fully transitions to the Great Basin Desert, dominated by sagebrush and saltbush vegetation. The vegetation of the basin floors of the North Range is typified by shadscale (*A. confertifolia*) and greasewood (*Sarcobatus baileyi*) and may include winter fat (*Ceratoides lanata)* and green molly. Most of the middle - and upper-elevation bajadas are dominated by the sagebrush-pinyon-juniper community. Additional species that occur in this community include: rabbitbrush (*Chrysothamnus greenei ssp. Filifolius)*, joint fir, and occasional Joshua trees (*Yucca brevifolia*). Scattered Utah juniper (*Juniperus osteosperma*) can occur on the flanks near the upper limit of sagebrush vegetation. The dominant vegetation type in the North Range mountains, above approximately 5,000 ft, is pinyon-juniper woodland, with big sagebrush dominating the shrub layer. White fir occurs at elevations above approximately 8,000 ft, with single -leaf pinyon and limber pine (NAFB 1999a).

Wetlands and Waters of the United States. Based on the results of a range-wide survey (NAFB 1997b) there are no known water sources or wetlands, or waters of the U.S. located within the affected areas for the proposed infrastructure improvements at Tolicha Peak ECR.

Wildlife. Wildlife in the vicinity of the North Range includes species that are primarily associated with Great Basin montane scrub, pinyon-juniper woodland, Great Basin desert scrub, desert springs, and open water habitats. These habitats support numerous wildlife species including several species considered sensitive by state and federal governments. Most of the North Range comprises Great Basin habitats, the exceptions being in the southwestern corner, which is part of the transition between Mojave and Great Basin deserts. As a result, many (but not all) wildlife species associated with both Mojave and Great Basin habitats will occur.

Wildlife species associated with Mojave desert habitats found in the North Range are similar to those found in the South Range. Most of the common, larger mammal species that occur in the North Range habitats are similarly found in the South Range. A population of bighorn sheep (*Ovis Canadensis*) occurs on Stonewall Mountain. In addition, the rougher, more densely vegetated regions in the higher elevations of the North Range also support mountain lion (*Puma concolor*), bobcat (*Felis rufus*), and mule deer

(*Odocoileus Hemionus*). Pronghorn antelope (*Antilocapra americana*) and wild horses, however, occur predominantly in desert scrub communities found in the North Range, particularly in Cactus Flat, on alluvial fans bordering Breen Creek, and in the Kawich Valley.

The rodents of the Great Basin desert scrub habitat differ from those of the southern Mojave desert and include the pallid kangaroo mouse (*Microdipodops pallidus*), dark kangaroo mouse (*Microdipodops megacephalus*), sagebrush vole (*Lagarus curtatus*), and chisel-toothed kangaroo rat (*Dipodomys microps*). Several bat species are documented on the range in a NTTR-commissioned bat survey report (NAFB 1999b). Six species of bats, of the 20 species potentially occurring in the area, were documented on NTTR including long-legged myotis (*Myotis volans*), fringe-tailed myotis (*Myotis thysanodes pahasapensis*), California myotis (*Myotis californicus*), pipistrelle (*Pipistrellus hesperus*), Townsend's big-eared bat (*Plecotus townsendii*), and pallid bat (*Antrozous pallidus*). The California myotis was the most widespread and commonly observed species in the report and was found in all habitats that were sampled.

Bird species typical of the sagebrush community include the sage thrasher (*Oreoscoptes montanus*), sage sparrow (*Amphispiza belli*), and horned lark (*Eremophila alpestris*). Chukars (*Alectoris chukar*) have been introduced into the area and survive in rocky habitat and desert scrub near freshwater habitat. Raptors, regularly observed in the area, are similar to those found in the Mojave desert scrub in the South Range. The pinyon-juniper woodland supports the greatest bird diversities in the region. Reptiles are less abundant in the North Range, which is colder than the Mojave Desert Scrub habitat in the South Range. Some reptile species found in the North Range are also observed in the South Range (e.g., side-blotched and whiptail lizards). Additional species include sagebrush lizard (*Scloperous graciosus*), leopard lizard (*Gambelia wislizenii*), and the Great Basin rattlesnake (*Crotalus viridis lutosis*). Desert tortoise are not found in the North Range. Amphibians on the North Range are restricted to the rare areas near water and include the Great Basin spadefoot toad (*Scaphiopus hammondi*). Native fishes are not known or expected to occur because of the lack of perennial pools of water, of sufficient extent, to sustain populations during drought.

Special-Status Species. There are no federally-listed threatened or endangered plant species known or likely to occur within NTTR's North Range. The only known-federally listed wildlife species known to occur on NTTR is the Desert tortoise which is only found in the southern portion of the South Range.

NTTR/South Range

Vegetation. The South Range lies in the northeastern portion of the Mojave Desert. Creosote bush-white bursage and saltbush communities are the most common vegetation communities on the South Range. Where soils are especially alkaline and clay-rich, as on the margins of dry lake beds (playas) at the lowest elevations, saltbush species including four-wing saltbush (*Atriplex canescens*), cattle-spinach (*A. polycarpa*), and shadscale (*A. confertifolia*) dominate the vegetation. Saltbush communities, especially

near playas, may consist exclusively of these species. Vast areas of the basins and bajadas in the Mojave Desert, below approximately 1,200 m, support plant communities dominated by creosote bush and whitebursage. Saltbush species, ephedras (*Ephedra* spp.), brittlebush (*Enceliavirginensis*), desert mallow (*Sphaeralcea ambigua*), cacti (especially prickly pears and chollas [*Opuntia* spp.]), and Mojave yucca (*Yucca shidigera*) may also occur in this community (NAFB 1999a).

At higher elevations (approximately 1,200 to 1,800 m) the blackbrush community may predominate. This community includes blackbrush (*Coleogyne ramosissima*), ephedras, turpentine-broom (*Thamnosma montana*), and range ratney (*Krameria parvifolia*). Joshua tree (*Yucca brevifolia*) is another plant that may occur at higher elevations within the creosote bush-white bursage and the blackbrush communities. The sagebrush-piñon-juniper community comprises a woodland that is present on the Range and is distinctive of the higher elevations of the Mojave and Great Basin Deserts above at least 4,900 ft elevation, and usually above 5,900 ft (NAFB 1999a).

Wetlands and Waters of the United States. Based on the results of a range-wide survey (NAFB 1997b) there are no known water sources or wetlands, or waters of the U.S. located within the affected areas for the proposed infrastructure improvements at Point Bravo.

Wildlife. Wildlife species associated with Mojave desert habitats found in the South Range are similar to those described below in the North Range section above. Most of the common, larger mammal species that occur in the North Range habitats are similarly found in the South Range.

Special-Status Species. There are no federally-listed threatened or endangered plant species known or likely to occur within NTTR's South Range. However, there are there are 38 state- or federally-listed plant and animal species of concern occurring or potentially occurring within the affected environment of NTTR (USFWS 2001). The only known-federally listed wildlife species known to occur on NTTR is the desert tortoise which is only found in the southern portion of the South Range. A USFWS programmatic Biological Opinion issued June 17, 2003 indicated measures to be taken to minimize desert tortoise mortality or harassment and destruction of habitat (USFWS 2003). Measures include a maximum speed limit of 35 miles per hour for all regular vehicle travel except during periods of high desert tortoise activity, no off-road travel with the exception of Explosive Ordnance Disposal (EOD), presence of a qualified desert tortoise biologist during EOD activities, removal of desert tortoise areas of impact by a qualified biologist, installation of tortoise-proof fencing around high risk areas, and development of an approved vegetation rehabilitation plan (USFWS 2003).

Creech AFB

Vegetation. Creech AFB is located in the northeastern portion of the Mojave Desert at an elevation of approximately 3,120 ft. The surrounding landscape is typical of the Mojave Desert, with low lying enclosed basins surrounded by low mountains and bajadas formed of coalescing alluvial fans. On the

bajadas and mountain slopes, the vegetation is typically dominated by creosote bush (*Larrea tridentata*), with which white bursage (*Ambrosia dumosa*) is commonly codominant. Additional associates include saltbushes (*Atriplex* spp.), Mormon tea (*Ephedra* spp.), brittlebush (*Encelia virginensis*), desert mallow (*Sphaeralcea ambigua*), cholla and prickly pear cacti (*Opuntia* spp.), and Mojave yucca (*Yucca schidigera*). At higher elevations (about 4,000 ft), Joshua tree (*Yucca brevifolia*) becomes prevalent. On valley bottoms and dry lake beds (playas) at lower elevations, where soils are relatively fine, alkaline and clayey, saltbushes, including four-wing saltbush (*Atriplex canescens*), shadscale (*A. confertifolia*), and allscale (also called cattle spinach) (*A. polycarpa*) dominate the vegetation. Matchweed (*Gutierrezia sarothrae*), buckwheat (*Eriogonum* spp.), and cheesebush (*Hymenoclea salsola*) also occur in saltbush scrub in the study area (NAFB 1996).

Between these two primary vegetation types or ecosystems, local communities and associations dominated by different combinations of the above species and associated wildlife may be differentiated (Clark County 2000; NAFB 1998a; NAFB 1996). Around springs and drainage bottoms are found honey mesquite (*Prosopis glandulosa* var. *torreyana*), catclaw (*Acacia gregii*), cattle spinach, and introduced salt cedar (*Tamarix* spp.). Fan palms (*Washingtonia* spp.) and a variety of non-native species are commonly planted in developed areas. Highly disturbed sites tend to be dominated by introduced species such as Russian thistle (*Salsola kali*).

Vegetation surrounding the Creech AFB was systematically evaluated and mapped by Nellis AFB (1996). Mixed scrub vegetation typical of the Mojave Desert occurs on lands surrounding Creech AFB, where several associations including creosote bush, bursage, and different species of saltbush can be distinguished (NAFB1996). Within the fenced area of the airfield, the vegetation is very sparse due to disturbance and is dominated by non-native Russian thistle. Surrounding vegetation and wildlife habitat outside of the fence consists of creosote bush scrub and saltbush scrub. Two different associations of creosote bush scrub are recognized: one dominated by creosote bush and white bursage, occurring to the southwest to southeast and to the south surrounding Indian Springs; and another including a mixed scrub association of creosote bush, fourwing saltbush, and shadscale, throughout the area north of Creech AFB. The saltbush scrub occurs on the northeast side of the airfield.

Wetlands and Waters of the United States. The only surface water body in the vicinity of Creech AFB is the sewage treatment pond for the town of Indian Springs located to the east along I-95. The pond is outside of the boundaries of Creech AFB (NAFB 1999b). Based on the results of a range-wide survey (NAFB 1997b) there are no known water sources or wetlands, or waters of the U.S. located within the affected areas for the proposed action at Creech AFB.

Wildlife. Wildlife that typically occur in creosote bush scrub and saltbush scrub habitats, and are known on Creech AFB primarily outside of the fenced area. Mammals include black-tailed jackrabbits (*Lepus californicus*), desert woodrat (*Neotoma lepida*), kangaroo rats (*Dipodomys* spp.), coyote (*Canis latrans*),

and desert kit fox (*Vulpes macrotis arsipus*). Several species of bats may occur in the general area, attracted by water and associated insects at the municipal sewage ponds and the springs in Indian Springs Valley (NAFB 1997c). Pipistrelle (*Pipistrellus hesperus*) and California myotis (*Myotis californicus*) were documented in surveys at Indian Springs (NAFB 1997c).

A diverse herpetofauna that includes desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callosaurus draconoides*), side-blotched lizard, horned lizards (*Phrynosoma* spp.), western whiptail (*Cnemidophorus tigris*), and the desert tortoise. Several snakes may also be present, including kingsnake (*Lampropeltus getulus*), rosy boa (*Lichanura trivirgata*), gopher snake (*Pituophis melanoleucus*), and Mojave rattlesnake (*Crotalus scutulatus*).

Birds that include a variety of ground-dwelling seed or insect eaters such as jays, wrens, shrikes, towhees, sparrows, Gambel's quail, sage thrasher (*Oreoscoptes montanus)* and mourning dove; the omnivorous raven (*Corvus corax*); greater roadrunner (*Geococcyx californianus*), which feeds on snakes and lizards; and several species of raptors, including golden eagle (*Aquila chrysaetos*), redtailed hawk (*Buteo jamaicensis*), ferruginous hawk (*Buteo regalis*), and northern harrier (*Circus cyaneus*). Burrowing owls (*Athene cunicularia hyugea*) occur at the northern end of the runways at Creech AFB (NAFB 1996).

Special-Status Species. With the exception of the desert tortoise and burrowing owl, no special status plant or animal species are known or likely to occur in the areas subject to ground disturbance at Creech AFB. Desert tortoises are known to occur on land surrounding Creech AFB, but were not detected in a survey of the airfield area (NAFB 1996), and their occurrence is unlikely given the level of disturbance and activity. Burrowing owls have been known to occur in burrows in the disturbed soil at the north end of the runway at Creech AFB (NAFB 1996).

TTR

Vegetation. The TTR is located in the northwest portion of the North Range and is within the Great Basin Desert. The lowest elevation on the Range is approximately 5,250 feet; the highest elevation is approximately 7,550 feet. The dominant flora of the valley bottoms on the TTR include shadscale, budsage (*Artemisia spinescens)*, winterfat (*Ceratoides lanata*), and galleta grass (*Hilaria jamesii*). Less common plant species include Desert horsebrush (*Tetradymia glabrata)*, Spiny horsebrush (*Tetradymia spinosa*) and greasewood (*Sarcobatus vermiculatus)*. Big sagebrush (*Artemisia tridentata*) occurs in wash bottoms near the playa lakes. On the bajadas above the valley floor, shadscale, budsage, winterfat, and Indian ricegrass (*Oryzopsis hymenoides*) are dominant. At higher elevations, greasewood, wolfberry *(Symphoricarpos occidentalis)*, hop-sage (*Grayia spinosa*), and desert plume (*Stanleya pinnata*) are common. Single-leaf pinon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) dominate at the highest elevations (NAFB 1988).

Wetlands and Waters of the United States. Based on the results of a range-wide survey (NAFB 1997b) there are no known water sources or wetlands, or waters of the U.S. located within the affected areas for the proposed infrastructure improvements on TTR.

Wildlife. Wildlife on the TTR includes species primarily found in the Great Basin desert. Common mammals of the TTR include coyote, kit fox (*Vulpes macrotis*), badger (*Taxidae taxus*), and wild horses (*Equus caballus*) (NAFB 1988). Common small mammals include Botta's pocket gopher (*Thomomys bottae*), Townsend ground squirrel (*Spermophilus townsendii*), and white-tailed antelope squirrel (*Ammospermophilus leucurus*).

Reptiles commonly found on the TTR include side-blotched lizzard (*Uta stansburiana*), desert-horned lizzard (*Phrynosoma platyrhinos*), sagebrush lizard, Western whiptail lizard (*Cnemodophorus tigris*), and Great Basin gopher snake (*Pituophis melanoleucus*). Avian species include sage sparrow (*Amphispiza* billi), Vesper sparrow (*Pooecetes grammeus*), and horned lark.

Special-Status Species: No current federal threatened, endangered, or sensitive plant or animal species are known to occur on the TTR. The western burrowing owl, a state-protected bird, has been known to occur on this site (DOE 1996).

3.8.2 Environmental Consequences

In order to evaluate whether biological resources are adversely impacted, changes to vegetation, wetlands and water of the U.S., wildlife, and special status species were evaluated at Nellis AFB, NTTR, Creech AFB, and TTR.

Proposed Action

Nellis AFB. No adverse impacts to vegetation or wildlife would be expected since the construction and demolition projects would occur in previously developed areas of the base. Potential impacts to wildlife from construction noise would be short-term and not be expected to affect wildlife on the base that are already exposed to aircraft flight activities. New road construction could adversely impact wildlife habitats through fragmentation although the impacts would not be significant. No adverse impacts to rare plants species would be expected. Wetlands do not exist on the base; therefore no impact to this resource would occur. Populations of Las Vegas bearpoppy and Las Vegas buckwheat located in Areas II and III could be adversely impacted if infrastructure improvement projects take place where these plant species are located.

NTTR. Under the proposed action, no adverse impacts to vegetation or wildlife would occur in either the North or South Range. No impacts to wetlands would occur as none are present in the areas of proposed

infrastructure improvements. Proposed projects would occur in previously developed or disturbed areas resulting in insignificant impacts to biological resources. Wildlife in the area may be potentially impacted from construction noise; however the period of construction would be short-term and limited to the vicinity of the construction site. New road construction could adversely impact wildlife habitats through fragmentation although the impacts would not be significant. No adverse impacts to rare plants species would be expected. No adverse impacts to rare plants species would be expected. In addition, potential adverse impacts to wildlife special-status species from construction and infrastructure improvement activities would not be expected. If during any ground disturbing activity in the South Range, the presence of desert tortoise is observed, the Air Force would comply with the requirements of the 2003 USFWS Biological Opinion for the protection of the species (USFWS 2003).

Creech AFB. Under the proposed action, no adverse impacts to vegetation or wildlife would occur. No impacts to wetlands would occur as none are present. Proposed projects would occur in previously developed or disturbed areas resulting in insignificant impacts to biological resources. Wildlife in the area may be potentially impacted from construction noise; however the period of construction would be short-term and limited to the vicinity of the construction site. New road construction could adversely impact wildlife habitats through fragmentation although the impacts would not be significant. No adverse impacts to rare plants species would be expected. In addition, potential adverse impacts to wildlife special-status species from construction and infrastructure improvement activities would not be expected. If during any ground disturbing activity the presence of desert tortoise is observed, the Air Force would comply with the requirements of the 2003 USFWS Biological Opinion for the protection of the species (USFWS 2003).

TTR. No adverse impacts to vegetation or wildlife would occur under the proposed action. No wetlands exist in the area, so none would be affected. In addition, no adverse impacts to special-status species would be expected as none are known to occur on TTR. Wildlife in the area may be potentially impacted from construction noise; however, the period of construction would be short-term and limited to the vicinity of the construction site. New road construction could adversely impact wildlife habitats through fragmentation although the impacts would not be significant.

No-Action Alternative

No adverse impacts to vegetation, wildlife, or special-status species would be anticipated through implementation of the no-action alternative at Nellis AFB, Creech AFB, NTTR, and TTR. No new construction, demolition, or infrastructure improvement projects would take place at this time. No noise from construction related activities would occur, so would not affect wildlife. There would be no change to current baseline conditions.

3.8.3 Cumulative Effects

Combined impacts to vegetation would be insignificant due to the already disturbed nature found at all locations. None of the potentially affected areas contain wetlands or waters of the U.S.; however, in the event that undocumented ephemeral washes or arroyos are encountered, a Section 404 determination under the Clean Water Act (CWA) would be made and Nellis AFB would obtain all necessary permits from the U.S. Army Corps of Engineers. Wildlife impacts would be minimal given the already disturbed nature of each proposed infrastructure improvement location. Combined impacts to rare plant species would be insignificant since the only known rare plants potentially affected are located on Nellis AFB. Combined impacts to the desert tortoise known to exist in the NTTR South Range and Creech AFB would be limited to potential loss of desert tortoise habitat and individuals. Due to the low concentrations of the desert tortoise found in these locations and adherence to the measures required by the 2003 USFWS Biological Opinion, these impacts would be insignificant.

3.9 SOILS AND WATER RESOURCES

The principal factors influencing stability of structures are soil and seismic properties. Soil, in general, refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Relative to development, soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

Water resources include surface and ground water. Lakes, rivers, and streams comprise surface water resources that are important for economic, ecological, recreational, and human health reasons. Groundwater is used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. Attributes of water resources considered in this EA include hydrologic setting, availability, use, quality (including protection zones), floodplains, flood hazard, and adjudicated claims to water rights for both surface and groundwater. The CWA of 1972 is the primary federal law that protects the nation's waters, including lakes, rivers, and aquifers. The primary objective of the Act is to restore and maintain the integrity of the nation's waters. Jurisdictional waters of the U.S. are regulated resources and are subject to federal authority under Section 404 of the CWA. This term is broadly defined to include navigable waters (including intermittent streams), impoundments, tributary streams, and wetlands. Criteria for water quality within the State of Nevada are contained in the Nevada Administrative Code (NAC), Chapter 445A.119, and apply to existing and designated beneficial uses of surface water bodies. Water quality standards are driven by the beneficial uses of specific water bodies. Beneficial uses include agriculture (irrigation and livestock watering), aquatic life, recreation (contact and non-contact), municipal or domestic supply, industrial supply, and wildlife propagation.

The State of Nevada has adopted drinking water standards established by the USEPA, under the Safe Drinking Water Act. The Nevada Department of Health regulates drinking water quality for public supply systems. Drinking water standards consist of maximum contaminant levels established for various water quality constituents to protect against adverse health effects.

3.9.1 Affected Environment

General soils and water information pertains to all four areas where proposed WINDO program improvements would occur. All areas are located within the southern Las Vegas sub-basin of the Great Basin, the northernmost subprovince of the Basin and Range Physiographic Province. This province is generally characterized by regularly spaced, north-south trending mountain ranges that are separated by internally-draining alluvial basins or playas. The elevations of mountains and intervening valleys increase from south to north. The Great Basin subprovince drains internally; precipitation has no surface water outlet to the Pacific Ocean.

The Sierra Nevada, stretching along Nevada's western border, interrupts the prevailing easterly flow of storm systems and the state's access to precipitation, resulting in a "rain shadow." Surface water is sparse in Nevada. Typically, as much as 75 percent of Nevada's precipitation falls during the winter. The scarcity of surface water resources is attributed to a dry regional climate characterized by low precipitation, high evaporation, low humidity, and wide extremes in daily temperatures. Average precipitation depends mainly on elevation and ranges from 4 inches on the desert floor to 16 inches in the mountain areas. With the exception of locally intense thunderstorms that can produce flash flooding, much of the warm weather precipitation is lost to the atmosphere through evaporation and transpiration. Flash floods produce high peak flows over short periods of time.

Nevada's groundwater is typically found in unconsolidated deposits of sand, gravel, silt, and clay that partly fill the many basins. Most groundwater development is in basins where water is readily obtained from shallow unconsolidated deposits where well yields are more predictable than in the mountains. Groundwater use has been discussed previously in Section 3.5, Utilities and Infrastructure.

Nellis AFB

Soils. Nellis AFB is located in the southern part of the Las Vegas Valley. The elevation of Nellis AFB is about 2,000 feet above sea level. The ground surface over most of Nellis AFB is disturbed by man-made features, such as airfields, roads, and buildings. Nellis AFB is relatively flat. Over most of the base, including the vast majority of the developed areas, slopes are 1 percent or less.

Nellis AFB lies primarily on two types of soil, the Las Vegas-Destazo complex and the Las Vegas-Skyhaven complex (USDA 1985). These soils are very similar physically and chemically. Las Vegas soils comprise 60 percent of Nellis AFB soils and Skyhaven and Destazo soils together comprise 25 to 30

percent, leaving 10 to 15 percent McCarran-Grapevine complex, Weiser-Goodsprings complex, and Glencarb silt loam. The main soil types share the following attributes:

- moderately slow permeability;
- slight potential for water erosion;
- high potential for wind erosion; and
- a shallow hardpan layer that limits construction.

These attributes indicate that ground disturbance at Nellis AFB, such as construction, could lead to a high degree of wind erosion. Erosion from precipitation and runoff is rare, due to soil characteristics and lack of slope on Nellis AFB.

Water. The Las Vegas Valley extends in a northwest-southeast direction and drains toward the south through the Las Vegas Wash into Lake Mead. Nellis AFB lies in the southern portion of the Las Vegas Valley within the Colorado River Basin. Natural surface waters and perennial streams are nonexistent. No 100-year floodplains occur within the developed portions of the base. The little precipitation that is captured is drawn into the valley's principal basin-fill aquifer, shallow aquifers, and the Colorado River.

Nellis AFB is underlain by carbonate rock aquifers of the Death Valley and Colorado aquifer systems (USGS 1997), which are hydrologically connected to shallower alluvial aquifer systems composed of sand and gravels. The principal aquifer in the Las Vegas Valley hydrologic basin is naturally recharged by 30,000 to 35,000 afy mostly from the Spring Mountains on the west valley boundary. Recharge of the shallow aquifers is also occurring, primarily as a result of irrigation water percolating into the ground.

Surface water is transported to Nellis AFB by pipelines from Lake Mead. No ephemeral streams, natural lakes, or other open bodies of water, excluding manmade impoundments, are found on Nellis AFB. Low precipitation, a lack of slope, and the absence of streams create a context where the potential for water erosion is rare.

Sources of groundwater are available from the principal alluvial-fill aquifer underlying the Las Vegas Valley. Wells are located in both the northwest part of the valley for the Las Vegas Valley Water District/Southern Nevada Water Authority and in the northern end of the valley for North Las Vegas Water District. Current supply at Nellis AFB is considered adequate (NAFB 2003a).

Piped surface and ground waters support base personnel and operations. This includes water for drinking and sewage systems, fire utilities, maintaining landscapes, and construction. Over 60 percent of current water use on Nellis AFB is for aircraft washing and maintenance. All water sources for Nellis AFB meet USEPA and State of Nevada standards.

Creech AFB

Soils. Creech AFB is located in the southern opening of the Indian Springs Valley. The valley is bound by the Spotted Range and Buried Hills to the west and the Pintwater Range to the east. The valley areas are dominated by Quaternary alluvial deposits with patches of Quaternary playa and marsh deposits north of Creech AFB. The local mountains (southern Pintwater Range and Spotted Range) are primarily paleozoic limestone, dolomite, shale, and quartzite. Due primarily to the western winds, the western sides of the mountains in the area are commonly flanked by dunes on top of deep alluvial fans (NAFB 1999b).

Soils in the vicinity of Creech AFB have not been mapped in detail. Soil information for the area is based on general descriptions from various resource surveys, geologic studies in adjacent areas, and general observations. The following summary of soils in the vicinity of Creech AFB is based on the aforementioned reports and observations.

Soils in the area are aridisols developed in carbonate parent material from local mountains (NAFB 1999b). Aridisols generally have poorly developed A horizons with clear B and C horizons and are sandy, loose, and prone to erosion in areas not protected by desert pavement. Soils can form anywhere that sediments accumulate; however, soils develop very slowly in desert environments and are easily disturbed. Much of the area has a surface crust known as desert pavement, which is an armored surface crust of packed angular to sub-rounded rock fragments covering the soils surface. Desert pavement is common to arid environments and acts as a shell to softer, more vulnerable soils below. Lenses of caliche (sediment cemented together with sodium salts) and clay are also known to be present at depth (USACE 2003). The Creech AFB-owned property south of I-95 is being used for religious (a chapel is being leased by a local group) as well as Security Forces academic, administrative, and housing purposes and has existing culverts and proper storm water runoff channels to manage erosion and sedimentation to open waterways adjacent to the property (NAFB 1997a).

Water. Natural surface water is scarce on and around Creech AFB. Average annual precipitation is approximately 4 inches. Surface flow is primarily towards the two local playas, located north of the airfield where it collects and evaporates. Playas are not substantial recharge zones due to low infiltration and high evaporation rates. Evaporation rates in the area are very high and have been estimated at approximately 58 to 69 inches per year (NAFB 1999b).

Other than constructed ponds and structures, no permanent surface water occurs on or in the vicinity of Creech AFB. Surface water in the vicinity of Creech AFB flows through braided, ephemeral streams, which usually flow for brief periods immediately following precipitation events. The Creech AFB General Plan identifies the current water supply at Creech AFB as adequate yet stressed (NAFB 2003a).

Groundwater in the region is high in total dissolved solids at levels of 500-1,000 mg/l and rich in calcium and magnesium bicarbonate; however, the groundwater is well within the EPA standards for drinking water quality (NAFB 2002).

NTTR

Soils. NTTR includes geographic portions of the Mojave Desert. The valley bottoms of the North Range are approximately 4,500 to 5,500 feet, whereas the valley bottoms of the South Range vary in elevation from approximately 3,000 to 3,600 feet. Mountain range elevations are in excess of 8,600 feet on the North Range and over 6,000 feet on the South Range.

NTTR soils have been evaluated for general soil associations; specific soils have not been mapped in detail. Soils data are also available from cultural resource surveys conducted in the area and from geologic studies in adjacent areas. Soil data collected outside the NTTR can be extrapolated to the NTTR, when the geology, topography, geomorphology, climate, and vegetation on and off NTTR are similar. General descriptions of soils series are available from the U.S. Department of Agriculture. In summary, soils at NTTR consist of the following.

In the southern portion of NTTR, soils are aridisols developed in carbonate parent material, usually with weak, vesicular A horizons, strong cumulic B horizons, and moderate to well developed C horizons (depending on the age of the parent sediment). Strongly developed carbonate soil morphologies occur where major washes are entrenched into alluvial fans (NAFB 1997a).

In the northern portion of NTTR, soils at lower elevations are typically entisols and aridisols. Entisols are most common where sand sheets have been deposited above playa landforms. Mollisols are common in the mountains, at higher elevations. A horizons typically are better developed because more moisture is present. The presence of volcanic parent materials often results in greater clay content. These soils typically consist of a noticeable organic component in relatively dense scrub and woodland habitats. B horizons have a cumulic character due to the influx of eolian silt and clay-sized particles during the Quaternary period. Carbonate horizons are commonly developed in older parent material, with most carbonate material originating from eolian dust (NAFB 1997a).

The alluvial soils that dominate the fans and basins, in conjunction with the fine soil particles from lacustrine sources, are subject to excessive wind erosion. These fined-grained materials are often entrained into the air stream and can result in fugitive dust.

Water. A total of 11 hydrographic basins that contained dry lake beds were identified in a previous study within the NTTR. The areas of these hydrographic basins ranged from 99 to 971 square miles (NAFB 1997b). Within the arid area of NTTR, the availability of moisture in excess of evaporation and transpiration is so limited that few perennial surface water features are present. With the exception of

man-made ponds and catchments, the only perennial surface water comes from springs that form where ground water intersects the surface; these springs flow for short distances on the ground surface, which is underlain by bedrock. Most surface water is temporarily present as a result of ponding in low permeability playas and as ephemeral channel flow from infrequent precipitation and snowmelt runoff. Playas are not major recharge zones due to the low infiltration potential. Most surface water that reaches the playas is lost through evaporation.

TTR

Soils. As with the NTTR, soils have not been mapped in detail at TTR. Soils are similar to those described for the northern portion of the NTTR and at lower elevations are typically entisols and aridisols (NAFB 1997a).

Water. Water features within TTR are similar to those described for the NTTR. With the exception of man-made ponds and catchments, the only perennial surface water comes from springs that form where ground water intersects the surface. The springs flow for short distances on the ground surface, which is underlain by bedrock. Most surface water is temporarily present as a result of ponding in low permeability playas and as ephemeral channel flow from infrequent precipitation and snowmelt runoff. Playas are not major recharge zones due to the low infiltration potential. Most surface water that reaches the playas is lost through evaporation.

3.9.2 Environmental Consequences

Analysis of the potential impacts to soil resources employs the following steps: identifying locations where the actions may directly or indirectly affect earth resources, defining the nature of the affected earth resource, and evaluating the degree to which the characteristics, abundance, or value of the resource would be altered, depleted, or degraded.

In terms of water resources, no aspect of current operations at Nellis AFB, NTTR, Creech AFB, or TTR affect either hydrologic setting or water sources; this would not change under the proposed action. Therefore, this analysis focuses on potential effects on water use, availability, and quality.

Proposed Action

Nellis AFB

Soils. Under the proposed action, construction of new facilities and demolition at Nellis AFB would occur during 2005 through 2007. Depending on the size of the area of disturbance for projects, they may be subject to conditions of existing NPDES permits. The existing Stormwater Pollution Prevention Plan (SWPPP) would need to be updated to reflect these new facilities and be prepared prior to construction. The SWPPP would specify measures to reduce or eliminate any adverse erosion and sedimentation

impacts (e.g., culvert and storm water runoff drainage). In addition, fugitive dust would be reduced during construction through soil watering, gravel, and proper grading to minimize any affects from this resource.

Site grading associated with construction of new facilities and demolition of existing facilities would be the primary activity with the potential to affect earth resources. Grading would cause loss of some disturbed ground cover for new facilities, which would increase the potential for soil erosion. However, several factors indicate that erosion and soil loss would be negligible. First, the area affected would be only be between 4 to 16 acres (at the most) within the developed portion of Nellis AFB. Most of the proposed construction would replace existing buildings. Second, construction activities would take place over 3 years, limiting the total area exposed to erosion at any point in time. Third, low precipitation (8 inches per year) and low runoff (0.2 - 2.1 inches per year), combined with the flat topography of the base would substantially reduce the potential for erosion. Lastly, Air Force requirements to employ standard construction practices (e.g., soil stockpiling, watering), and follow NPDES permits and SWPPP requirements would further limit both wind and water erosion. Based on these factors, construction grading would not measurably degrade soil resources through erosion or loss. In summary, there would neither be adverse nor significant impacts to soil resources if the proposed action were implemented.

Water. Under the proposed action, construction and demolition activities are expected to have no appreciable effects on the surface waters at Nellis AFB or in the surrounding areas. Surface water for Nellis AFB is transported via pipelines from Lake Mead. Sources of groundwater are available from the principal alluvial-fill aquifer underlying the Las Vegas Valley. Although implementation of the proposed projects would increase the use of water, the increase would be temporary and would use little water. Affect on the availability of ground water at Nellis AFB or in the surrounding areas would be minimal.

Use of water for the proposed infrastructure improvement projects would not significantly affect availability of surface water or ground water at Nellis AFB or elsewhere in the area. Nellis AFB currently is allotted about 7,000 afy (combined surface and groundwater sources); anticipated increases are anticipated to be well within current water allocation and will not require Nellis AFB to seek additional water rights. Construction of new facilities with more efficient water conservation design and measures and demolition of existing facilities would help offset any increased water use.

Projected on-base construction would disturb existing groundcover, but the potential for soil loss, erosion, and sedimentation would be temporary and limited in scope. Because no perennial or ephemeral streams, natural lakes, or other open bodies of water are present at Nellis AFB, no sediments would be introduced into surface waters.

The proposed action includes paving and construction of buildings with impermeable surfacing. If the area of disturbance for the proposed action is greater than 1 acre, it is subject to NPDES permit

conditions. Nellis AFB would amend their existing NPDES permit to accommodate such construction. During construction at Nellis AFB, soils would temporarily be exposed to compaction, impeding drainage and reducing water infiltration. However, existing water filtration is limited due type of soils found at Nellis AFB. In addition, construction and demolition activities could increase runoff volumes and alter current hydrological processes. However, the base lacks significant open water bodies and the area altered would be a small portion of the existing permeable surfaces at Nellis AFB. Since no surface water resources of consequence are located on base and there would not be any negligible increase and/or change from existing impenetrable surfaces, implementation of the proposed action would not significantly impact surface water. Existing spill prevention, control, and countermeasure procedures would provide for protection of surface water sources during construction and use of facilities, so the potential for base or off-base surface water quality to be affected would be negligible.

Construction and paving associated with the proposed improvement projects could result in slightly fewer acres available to facilitate groundwater recharge, but the impact would not be adverse or significant given the low average annual precipitation, minimal recharge associated with the soils found at the base, and the lack of year-round surface water on the base. No floodplains have been identified on base. Since the existing potential for flooding on Nellis AFB is minimal, the proposed action would not increase flood hazards on the base.

Creech AFB

Soils. The soil erosion potential from water and wind from construction projects would be generally slight to moderate due to the type of soil as well as slight slope found at Creech AFB. Construction activities would involve removal of a minimal amount of vegetation and soils as well as grading. These activities would expose underlying soil to wind and water erosion and could result in sedimentation in surface impoundments. However, best management practices (BMPs) such as proper grading, stabilization, culverts to channel storm water runoff, and watering construction sites to limit fugitive dust, would minimize adverse effects.

Under the proposed action, construction of new facilities at either Creech AFB or at the adjacent Creech AFB property would occur in the next couple years. Depending on the size of the area of disturbance for projects, they may be subject to conditions of existing NPDES permits. The existing SWPPP would need to be updated to reflect these new facilities and be prepared prior to construction. The SWPPP would specify measures to reduce or eliminate any adverse erosion and sedimentation impacts (e.g., culvert and storm water runoff drainage). In addition, fugitive dust would be reduced during construction through soil watering, gravel, and proper grading to minimize any affects from this resource.

Much of the area has been previously graded. Excavation would likely be required for much of the new construction due to the potential for caliche and clay lenses at depth. Site grading, construction of the proposed facilities, and any associated activities would result in temporary soil disturbance. Soils in the

area are generally aridisols developed in carbonate parent material from local mountains. They are generally soft and easily erodible. The relatively flat terrain and low precipitation rates would minimize potential construction erosion. Erosion potential would be increased during periods of high winds or storms, especially during construction. Activities would be completed in compliance with geotechnical recommendations, common construction practices, local building permit requirements, and federal and state requirements. Provisions for both temporary and permanent erosion control, such as the use of plastic to cover spoil piles, would be implemented. Control measures would be monitored and maintained to ensure effectiveness. After construction, increased hard surfaces would have the potential to increase runoff and resulting erosion. Design factors will be incorporated into the projects to protect surface areas from erosion.

Compliance with established plans and policies and incorporation of standard erosion control measures into project design and construction requirements would reduce erosion potential to less than significant.

Water. Construction-related excavation and grading activities required for the proposed action could potentially impact surface water quality during stormwater run-off and erosion events. Standard erosion control measures will be included in construction procedures. Design and construction would follow all applicable and appropriate regulations and ordinances regarding stormwater retention and treatment. Additional hard surfaces from structures and paving would have the potential to concentrate rain water and to increase stormwater run-off and erosion events. Facilities constructed as part of the project would include stormwater runoff control features such as gutters, concrete swales, and culvert drain systems. If the area of disturbance for the proposed action is greater than 1 acre, it is subject to NPDES permit conditions. Nellis AFB would amend their existing NPDES permit to accommodate such construction. The lack of precipitation and existing spill prevention, control, and countermeasure procedures would provide for protection of surface water sources during construction and use of facilities, so the potential for base or off-base surface water quality to be affected would be negligible.

No floodplains have been identified on base. Since the existing potential for flooding on Nellis AFB is minimal, the proposed action would not increase flood hazards on the base.

NTTR

Soils. Up to four construction projects are proposed at NTTR under the WINDO program. Construction and ground-disturbing activities would take place at several facilities within both the North and South Ranges over the next couple of years. The soil erosion potential from water and wind for construction would be generally slight to moderate due to the type of soil as well as slight slope found at the proposed improvement sites. Construction activities would involve removal of vegetation and soils as well as grading, especially if construction occurs at previously undisturbed sites. These activities would expose underlying soil to wind and water erosion. Erosion from water could result in sedimentation in the ephemeral washes or surface impoundments. However, BMPs such as proper grading, stabilization,

culverts to channel storm water runoff, and watering roads to limit fugitive dust would minimize soil erosion. In addition, the arid climate found at NTTR as well as distribution of construction activities over multiple years in geographically separate portions of NTTR would further minimize erosional impacts. Soil resources, therefore, would not be adversely affected by the proposed action at NTTR.

Water. If the area of disturbance for the proposed action is greater than 1 acre, it is subject to NPDES permit conditions. Nellis AFB would amend their existing NPDES permit to accommodate facility construction. The existing SWPPP would need to be updated prior to construction and would specify BMPs to reduce or eliminate significant erosion and sedimentation impacts. As with Creech AFB, compliance with established plans and policies and incorporation of standard erosion control measures into project design and construction requirements would reduce erosion potential to less than significant.

TTR

Soils. A total of 12 projects are proposed for TTR under the WINDO program, two entailing construction of new facilities, and ten projects entailing demolition and removal of existing infrastructure. These actions would result in disturbance of a limited number of acres on already developed lands within TTR. The soil erosion potential from water and wind for construction projects would be generally slight to moderate due to the type of soil as well as flat topography found at the proposed locations. Construction and demolition activities would involve removal of a minimal amount of vegetation and soils as well as grading. These activities would expose underlying soil to wind and water erosion and could result in sedimentation in surface impoundments. However, BMPs such as proper grading, stabilization, culverts to channel storm water runoff, and watering construction sites to limit fugitive dust, would minimize adverse effects.

After construction, increased hard surfaces could have the potential to increase runoff and resulting erosion but design factors as well as the arid climate will preclude any adverse effects to soil resources at TTR.

Water. As with the other proposed project areas, TTR proposed projects are found in areas with minimal slope, precipitation, and surface flows. Construction and demolition projects would adhere to established plans and policies for limiting water pollution. Standard erosion control measures would be incorporated into project design and construction requirements would reduce potential for adverse impacts to water quality to less than significant. Again, if the area of disturbance for a project would be greater than 1 acre, it would be subject to NPDES permit conditions. Any existing NPDES permits would be amended to accommodate facility construction. The existing SWPPP would need to be updated prior to construction and would specify BMPs to reduce or eliminate significant erosion and sedimentation impacts. With compliance to these measures and the arid nature of the region, no adverse or significant impacts are anticipated to water resources.

No-Action Alternative

Under the no-action alternative, ongoing Air Force and interagency programs and activities at Nellis AFB, Creech AFB, NTTR, and TTR would continue operating at current levels as reflected in current Air Force management plans. These plans include recent activities that have been approved by Air Force and have existing NEPA documentation. Under the no-action alternative, the proposed action would not be implemented at any location but Nellis AFB would continue to manage the soils and water resources, found at all locations, in accordance with state and federal regulations. No additional impacts to soil or water resources would occur.

3.9.3 Cumulative Effects

For all actions analyzed under the WINDO program, soil disturbance would be no more than 14 acres in any given year. Because these infrastructure actions are so geographically separated from each other, and proper construction measures would be undertaken to limit erosion, the potential for adverse effects to soil and water resources would be negligible. Water use would not change measurably or exceed capacities. Therefore, there would be no significant synergistic cumulative effects to soils and water resources.

3.10 CULTURAL RESOURCES

Cultural resources are districts, sites, buildings, structures, or objects considered to be important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. For this EA, cultural resources are divided into three major categories: archaeological resources, architectural resources, and traditional cultural resources.

Archaeological resources are locations where human activity has measurably altered the earth (e.g., hearths, rock alignments, foundations) or left deposits of physical remains (e.g., arrowheads, bottles). For the purposes of this EA, the terms "American Indian" and "early American Indian" are used rather than prehistoric, except where a law or regulation is quoted. The distinction between early American Indian and historic time periods is now viewed as somewhat arbitrary and many American Indians do not distinguish "prehistoric" from "historic." "Historic" applies to archaeological sites that clearly post-date Euroamerican contact with American Indians (i.e., 19th and 20th centuries). Archaeological resources are usually further classified as either sites or isolates on the basis of quantity, density, and type of cultural material.

Architectural resources are defined as standing buildings, facilities, and other structures potentially having historical, aesthetic, or scientific significance.

Traditional cultural resources are resources associated with cultural practices and beliefs of a living community that are rooted in its history and are important in maintaining the continuing cultural identity of the community. In Nevada, these are usually associated with modern American Indian groups.

Section 106 Process and Consultation. The National Historic Preservation Act (NHPA) and its associated regulations specify the Section 106 process for determining the impacts of federal actions on properties listed, eligible, or recommended as eligible for the National Register of Historic Places (National Register). Eligibility of archaeological and architectural resources is determined by using specific criteria (listed in 36 CFR Part 60.4). Traditional cultural resources can be evaluated for National Register eligibility as well. However, even if a traditional cultural resource is determined to be not eligible for the National Register, it may still be significant to a particular American Indian tribe and may be protected under the Native American Graves Protection and Repatriation Act, the American Indian Religious Freedom Act, and Executive Order (EO) 13007 addressing sacred Indian sites. The Air Force has responsibility for Section 106 actions on Nellis AFB and the NTTR. For portions of the South Range lands within the Desert National Wildlife Range DNWR, the Air Force and the USFWS share responsibility for fulfilling Section 106.

Methods for determining the presence of National Register-eligible cultural resources within the affected environment were based on existing data, including the NTTR CRMP and recent cultural resources projects (NAFB 1998c, Myhrer 2003).

Consultation between the Air Force and local American Indian tribes is handled as part of Nellis AFB's Native American Program. This program, which includes 17 regional tribes with ancestral ties to the land at NTTR, selects American Indian monitors who accompany archaeologists, identify and evaluate resources, and review environmental documents as part of regular formal and informal consultation.

3.10.1 Affected Environment

The affected environment for cultural resources includes the areas proposed as locations for potential projects. These areas include previously disturbed and improved areas on Nellis AFB, at facilities associated with the Tolicha Peak ECR and Point Bravo on the NTTR, within the Creech AFB, and at the facilities associated with the TTR.

Nellis AFB. All of Nellis AFB, which includes Area I, Area II, and Area III have been surveyed for archaeological resources. One National Register-eligible site, a quarry, is located on Nellis AFB. All other sites previously recorded on Nellis AFB are not considered eligible to the National Register. The Nevada SHPO has concurred with these determinations (Myhrer 2003).

In 1988, Page and Turnbull completed an inventory and evaluation of World War II structures at Nellis AFB. The McCarran Field Air Terminal Building was the only structure considered to be eligible to the National Register. However, The SHPO concluded in 1996 that the building lacked integrity (NAFB 1998c). TRC Mariah Associates, Inc. completed an inventory of 194 Cold War-era cultural resources on Nellis AFB in 1994. Five structures were evaluated for nomination to the National Register (USACE 1994). An updated building survey is proposed for 2005 (personal communication, K. Myhrer 2005).

No known traditional resources, sacred areas, or traditional use areas have been identified on Nellis AFB.

Creech AFB. An intensive archaeological survey of the Creech AFB (formerly Indian Springs Air Force Auxiliary Field) was completed in 1995 (York *et al.* 1996). The Nevada SHPO concurred with the determination of no eligible sites (NAFB 1998c). In addition, no National Register-eligible World War II-era structures have been identified on Creech AFB (NAFB 1998c). No structures significant to the Cold War period have been identified; however, new inventory is currently scheduled (NAFB 1998c). Traditional cultural properties have not been identified in this area.

NTTR. Approximately 6 percent of the NTTR has been surveyed for archaeological resources. This includes survey of over 11 percent of the Tolicha Peak ECR (NAFB 1998c). Over 2,000 sites have been recorded within the NTTR. Thirty-four sites are considered to be eligible for the National Register and 2,522 sites are unevaluated. Many of the unevaluated sites, especially those on playas and at lower elevations (below 5,000 feet), probably would not be considered eligible to the National Register (Myhrer 2003).

No World War II and Cold War-era National Register structures have been identified within the NTTR.

Through Nellis AFB's Native American Program and ethnographic studies, ceremonial and sacred sites within the NTTR have been identified and protected. Consultation through the Native American Program early in the planning process ensures that traditional cultural properties would not be affected by proposed projects.

TTR. Approximately 2 percent of the TTR has been surveyed for archaeological resources and over 400 sites have been recorded (NAFB 1998c). Like the surveys in the NTTR as a whole, most of these sites are unevaluated and require re-examination under present SHPO and Nellis AFB requirements. Many of these sites, especially near playas and on dry lake margins, probably would not be considered eligible to the National Register. For example in 1999, a 10 percent sample of the Cactus Flat dry lake margin near the TTR compound was surveyed (WCRM 2000). Sites in the area were primarily surface manifestations with a minimal number of hearth features. Out of 28 sites recorded, only one site was considered to be eligible to the National Register.

No World War II or Cold War-era National Register structures have been identified; however, no new inventory is currently scheduled (NAFB 1998c).

Traditional resources throughout the NTTR have been identified and protected through Nellis AFB's Native American Program and associated ethnographic studies. Consultation through the Native American Program early in the planning process ensures that traditional cultural properties would not be affected by proposed projects.

3.10.2 Environmental Consequences

Procedures for assessing adverse effects to cultural resources are discussed in regulations for 36 CFR Part 800 of the NHPA. An action results in adverse effects to a cultural resource eligible to the National Register when it alters the resource characteristics that qualify it for inclusion in the register. Adverse effects are most often a result of physical destruction, damage, or alteration of a resource; alteration of the character of the surrounding environment that contributes to the resource's eligibility; introduction of visual, audible, or atmospheric intrusions out of character with the resource or its setting; and neglect of the resource resulting in its deterioration or destruction; or transfer, lease, or sale of the property. In the case of the proposed action, potential effects to cultural resources could result from ground disturbing activities associated with construction or demolition of significant structures.

Proposed Action

Nellis AFB. Under the proposed action, buildings, garages, parking lots, roads, fences, and runway shoulders would be constructed and four buildings demolished (Buildings 839, 2185, 10111, and 288). However, the one National Register-eligible archaeological site, and five potentially eligible Cold War-era would not be affected by construction or demolition activities. For the most part, construction would take place on existing improved or previously disturbed areas and demolition would be restricted to the existing building footprint. Structures would be inventories and evaluated prior to demolition. Known National Register-eligible sites and structures would be avoided if possible. No traditional cultural properties are known to occur on Nellis AFB. Therefore, effects to National Register-eligible archaeological sites, structures, or traditional cultural properties are unlikely.

If an infrastructure project would affect a known National Register-eligible site or structure, then procedures in accordance with 36 CFR Part 60 as specified in the Nellis AFB CRMP for the Section 106 process would be implemented. These procedures would include producing a mitigation plan, consulting with tribal representatives, if appropriate, a review by the SHPO and the ACHP prior to implementation.

If an unanticipated discovery of archaeological materials occurs during construction, then an investigation and evaluation will be conducted according to procedures in 36 CFR Part 60 and the Nellis AFB CRMP.

American Indian involvement would be active in field situations where American Indian sites, traditional cultural properties, or other American Indian properties are involved. Nellis AFB would ensure that consultation with American Indian representatives is conducted throughout the project. With the implementation of these procedures, there would be no adverse effect to cultural resources from the proposed action.

Creech AFB. Under the proposed action, buildings, parking lots, and concrete pads would be constructed. Since there are no known National Register-eligible sites, World War II era structures, or traditional resources within the Creech AFB, adverse impacts to cultural resources due to the proposed action is unlikely. If National Register-eligible Cold War structures are affected by the proposed action, then procedures in accordance with 36 CFR Part 60 as specified in the Nellis AFB CRMP for the Section 106 process would be implemented. If an unanticipated discovery of archaeological materials occurs during construction, then an investigation and evaluation would be conducted according to procedures in 36 CFR Part 60 and the Nellis AFB CRMP. With the implementation of these procedures, there would be no adverse effect to cultural resources from the proposed action.

NTTR. Under the proposed action, wells, fences, and a storage facility would be constructed at the Tolicha Peak ECR and in portions of the North and South Ranges. However, most construction would be located on existing improved or previously disturbed areas. Undisturbed areas would be examined by a professional archaeologist prior to construction (NAFB 1998c). Known National Register-eligible sites, structures, and traditional cultural properties would be avoided if possible. If a project would affect a known National Register-eligible site or structure, then procedures in accordance with 36 CFR Part 60 as specified in the Nellis AFB CRMP for the Section 106 process would be implemented. Therefore, effects to National Register-eligible archaeological sites, structures, or traditional cultural properties are unlikely.

If an unanticipated discovery of archaeological materials occurs during construction, then an investigation and evaluation would be conducted according to procedures in 36 CFR Part 60 and the Nellis AFB CRMP. American Indian involvement would be active in field situations where American Indian sites, traditional cultural properties, or other American Indian properties are involved. Nellis AFB would ensure that consultation with American Indian representatives is conducted throughout the project.

With the implementation of these procedures, there would be no adverse effect to cultural resources from the proposed action.

TTR. Projects at the TTR would consist of constructing a dining hall and fire station and demolishing 10 buildings (723, 738, 740, 748, 749, 801, 803, 804, 805, and 806). However, construction would be located on existing improved or previously disturbed areas. Prior to demolition, structures would be inventoried and evaluated. Known National Register-eligible sites, structures, and traditional cultural properties would be avoided if possible. If a project would affect a known National Register-eligible site

or structure, then procedures in accordance with 36 CFR 60 as specified in the Nellis AFB CRMP for the Section 106 process would be implemented. Therefore, effects to National Register-eligible archaeological sites, structures, or traditional cultural properties are unlikely.

If an unanticipated discovery of archaeological materials occurs during construction, then an investigation and evaluation would be conducted according to procedures in 36 CFR Part 60 and the Nellis AFB CRMP. American Indian involvement would be active in field situations where American Indian sites, traditional cultural properties, or other American Indian properties are involved. Nellis AFB would ensure that consultation with American Indian representatives is conducted throughout the project.

With the implementation of these procedures, there would be no adverse effect to cultural resources from the proposed action.

No-Action Alternative

Under the no-action alternative, no projects would be constructed or upgraded at Nellis AFB, Creech AFB, NTTR, or TTR. There would be no impact to National Register-eligible or listed resources.

3.10.3 Cumulative Effects

No adverse impacts to National Register-eligible or listed resources would occur under the proposed action. Therefore, if all proposed projects were implemented, no adverse effects to these resources would be expected.

3.11 SAFETY

3.11.1 Affected Environment

Nellis AFB

Ground Safety. Day-to-day operations and maintenance activities conducted at Nellis AFB are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Office of Safety and Health (AFOSH) requirements. In addition, Unified Facilities Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design Criteria,* limits locations and heights of objects and facilities around and in the immediate vicinity of an airfield to minimize hazards to airfield and flight operations. Any condition not meeting these requirements is classified as an approved waiver, a permissible deviation, an exemption, or a violation (UFC 3-260-01).

The Nellis AFB military fire department provides fire and crash response. Under current operations, the unit is fully capable of meeting its requirements. There are no identified equipment shortfalls or limiting

factors. The base maintains detailed response procedures to respond to a wide range of potential incidents. These processes assign agency responsibilities and prescribe functional activities necessary to react to major mishaps, whether on or off base. Initial response to an incident considers such factors as rescue, evacuation, fire suppression, safety, and ensuring security of the area, and other actions immediately necessary to prevent loss of life or further property damage.

Creech AFB

Ground Safety. Day-to-day operations and maintenance activities conducted at Creech AFB are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by AFOSH requirements. The fire department of Creech AFB is fully capable of responding to existing fires and accidents. However, on the installation, fire protection systems are degraded for Life Safety Code deficiencies at the combined briefing facility and a hangar with only water fire suppression systems (USAF 2003a). The Air Force and the Clark County are party to mutual support fire suppression agreements (personal communication, Williams 2005).

Creech AFB has 15 Headquarters Air Combat Command-approved installation facilities and/or associated obstruction waivers, 14 deviations, and 9 exemptions (NAFB 2003d).

NTTR

Ground Safety. As was mentioned earlier, Tolicha Peak ECR is located 20 miles north of Beatty and provides a range of high-to-low electronic threat emitters that provide training realism. A typical electronic countermeasures site consists of a small, graded area that is currently or has in the past been the location of manned and unmanned mobile radar stations and related support equipment. The sites vary is size from 20 feet to 250 feet in diameter. The frequencies at which these radars operate are in the radio frequency (RF) band of the electromagnetic spectrum. Potential effects of RF energy are discussed below.

RF emissions consist of the transmissions of non-ionizing energy through space to receptive objects. The types of RF-emitting equipment presently used by Tolicha Peak ECR include radio communications systems, electronic emitters, and scoring systems. DoD and Air Force safety instructions provide guidance for the safe operation of RF-emitting equipment as well as the training requirements for personnel who operate the equipment. All RF emitters are considered nonhazardous as long as applicable safety precautions and calculated hazard distances are followed. Acceptable energy levels and safe separation distances for persons vary depending on the frequency and transmitted power of the RF emitter. For each piece of equipment producing RF, separation distances between the equipment and a receptor have been calculated so that a person beyond that distance will not receive RF energy that exceeds permissible exposure limits. All RF-producing equipment is oriented so that the RF energy is directed away from personnel, and safe separation distances are maintained.

The majority of this equipment is aircraft threat simulation radar. Frequency management ensures that these transmitters do not create interference with other federal or civil transmitters or receivers. The unit is normally placed on elevated ground, and then emits skyward. It is not pointed at the ground, or along roadways. This equipment is operated under strict safety control measures that are determined for each system. These measures include installing warning signs, erecting rope or chain barriers, and having the equipment and the surrounding area under constant observation while it is operating.

Day-to-day operations and maintenance activities conducted at NTTR are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by AFOSH requirements.

TTR

Ground Safety. This area consists of approximately 335,000 acres of operational, maintenance, and administrative facilities. As described in Chapter 2, activities on the TTR include projectile firings, ground-launched rockets (both high and low altitude), air-launched rockets, explosion effects tests, earth penetration tests, cruise missile flights, and many miscellaneous activities requiring a remote location for non-nuclear DOE research and development projects or for other safety or security reasons. Day-to-day operations and maintenance activities conducted at TTR are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by AFOSH requirements.

3.11.2 Environmental Consequences

In evaluating safety, the impacts would be considered adverse if human safety were threatened or if safety zones or existing operations would need to be changed.

Nellis AFB. Effects to human safety related to construction and demolition would be minimal. During construction and demolition, all actions would be performed in accordance with applicable Air Force Office of Safety and Health (AFOSH) directives. There are no specific aspects of construction or demolition that would create any unique or extraordinary safety issues. The handling, processing, storage, and disposal of hazardous by-products of these activities would be accomplished in accordance with all federal and state requirements, as well as base plans that are applicable to the substance generated. All current day-to-day operations have established safety guidelines and procedures which would continue to be observed. No adverse impact to safety would be anticipated under the proposed action.

Creech AFB. Effects to human safety related to construction and demolition would be minimal for Creech AFB. During construction and demolition, all actions would be performed in accordance with applicable Air Force Office of Safety and Health (AFOSH) directives. All current day-to-day operations

have established safety guidelines and procedures which would continue to be observed. No adverse impact to safety would be anticipated under the proposed action.

NTTR. Effects to human safety related to construction and demolition would be minimal at NTTR. During construction and demolition, all actions would be performed in accordance with applicable Air Force Office of Safety and Health (AFOSH) directives. All current day-to-day operations have established safety guidelines and procedures which would continue to be observed. No adverse impact to safety would be anticipated under the proposed action at NTTR.

TTR. Effects to human safety related to construction and demolition would be minimal for TTR. During construction and demolition, all actions would be performed in accordance with applicable Air Force Office of Safety and Health (AFOSH) directives. All current day-to-day operations have established safety guidelines and procedures which would continue to be observed. No adverse impact to safety would be anticipated under the proposed action at TTR.

No-Action Alternative

Under the no-action alternative, no changes to the infrastructure would be expected to occur at Nellis AFB, Creech AFB, NTTR, and TTR. If these infrastructure upgrades associated with the proposed action do not occur; however, Air Force mission readiness could be adversely affected.

3.11.3 Cumulative Effects

Due to their geographic distance, safety would not be cumulatively, adversely affected by implementation of the proposed action at all locations. However, if these infrastructure improvements were not to occur, the overall safety environment at all locations could be impaired.

CHAPTER 4

CUMULATIVE EFFECTS IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

CHAPTER 4
CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.1 CUMULATIVE EFFECTS

CEQ regulations stipulate that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Assessing cumulative effects involves defining the scope of the other actions and their interrelationship with the proposed action and alternatives, if they overlap in space and time.

Cumulative effects are most likely to arise when a proposed action is related to other actions that occur in the same location or at a similar time. Actions geographically overlapping or close to the proposed action and alternatives would likely have more potential for a relationship than those farther away. Similarly, actions coinciding in time with the proposed action and alternatives would have a higher potential for cumulative effects.

To identify cumulative effects, three fundamental questions need to be addressed:

1. Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
3. If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

4.2 SCOPE OF CUMULATIVE EFFECTS ANALYSIS

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time in which the effects could occur. Since the potential impacts of the proposed action are found in four separate locations – Nellis AFB, NTTR (North and South ranges), Creech AFB, and TTR – the cumulative effects analysis includes the boundaries affected area for the proposed action at each location, and for some resources (i.e., air quality) it encompasses more than one location. An action not occurring within or near each of the affected areas is not considered in the analysis. The time frame for cumulative effects starts in 2005 when infrastructure improvement activities would begin. The period of the proposed action is 2005 through 2006. Public documents prepared by federal, state, and local government agencies were the primary sources of information for identifying reasonable foreseeable actions.

Past and Present Actions

Nellis AFB is an active military installation that undergoes continuous change in mission and in training requirements. This process of change is consistent with the United States defense policy that the Air Force must be ready to respond to threats to American interests throughout the world. Several recent mission and training requirements have resulted in facility construction and upgrades on the NTTR.

In 2002, the Air Force approved construction of a military operation in urban terrain (MOUT) facility encompassing approximately 97 acres at Silver Flag Alpha Complex on Range 63A with facilities constructed at the Creech AFB. Construction of the MOUT began in 2002 and is complete. In 2003, construction of a HTTC encompassing 946 acres on Range 62 was approved by the Air Force (Air Force 2003f). Construction of the HTTC began in 2004 and will conclude in 2008. In 2003, the Air Force implemented a force structure change that will add up to 48 medium- and high-altitude (MQ-1 and MQ-9) Predator unmanned aerial vehicles to the current inventory of 40 predators at Creech AFB and add 143 personnel to Nellis AFB (Air Force 2003d). Construction and infrastructure improvement projects related to the Predator force structure are complete some with others scheduled for completion in 2005 and 2006.

No known past and/or present actions were identified, that when combined with the proposed action at NTTR would result in any cumulative effects. All past and present actions at NTTR resulting from Air Force activities involving use of the range and airspace would not change from those described in the *Nellis Renewal Legislative Environmental Impact Statement* (Air Force 1999b). In addition, no known past and/or present actions were identified, that when combined with the proposed action at Nellis AFB would result in any cumulative effects.

Future Proposed Actions

Actions potentially relating to the cumulative effects for the proposed new construction and infrastructure improvements could include those of the DoD, DOE, Department of the Interior, and local counties. The Air Force proposes to beddown 36 F-35 aircraft at Nellis AFB to establish the F-35 Force Development Evaluation testing and Weapons School. The beddown would begin in fiscal year 2009 reaching the full complement in 2019. Construction related projects would begin in 2006 and continue through 2013. An increase of annual airfield operations at Nellis AFB and munitions, chaff, and flare utilization in NTTR airspace would occur under the F-35 proposal.

Most of these actions have been analyzed previously in the *Nellis Renewal Legislative Environmental Impact Statement* (Air Force 1999b). The activities, when evaluated with the proposed action would not generate additive cumulative effects to the region. Because implementation of the proposed action would result in temporary or very minor impacts to each of the resources analyzed at each location (i.e., Nellis

AFB, NTTR, Creech AFB, and TTR), it is not anticipated that the proposed action when combined with other future proposed actions, would have a negative cumulative effect on other resources.

4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA requires that environmental analysis include identification of any irreversible and irretrievable commitment of resources which would be involved in the proposed action or alternatives should they be implemented. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

For the WINDO projects, most resource commitments are neither irreversible nor irretrievable. Most environmental impacts are short-term and temporary, such as air emissions and noise from demolition and construction operations. Some environmental impacts are longer lasting such as the loss of vegetation. While the loss of vegetation could occur, it does not represent native habitat and the amount lost in relation to the over 3 million acres encompassing Nellis AFB and NTTR would be insignificant.

Personal, contract, and construction vehicles to the site would consume fuel, oil, and lubricants. The amount of these materials would not likely exceed that currently used by these individuals conducting similar activities at Nellis AFB, NTTR, Creech AFB, and TTR. The proposed action would likely increase consumption of some of these resources; however the increase would not be significant. Construction projects would require consumption of limited amounts of materials typically associated with construction (e.g. wood, metal, asphalt); however, the amount of materials used is not expected to significantly decrease the availability of these resources. The quantity of materials that will be used and the loss and degradation of the Great Basin Mojave Desert scrub habitats under the proposed action is insignificant. A more serious cumulative impact is associated with the continued growth and development of the Clark and Nye Counties and the Las Vegas Valley which is resulting in the loss and degradation of Mojave Desert scrub habitats in southern Nevada.

CHAPTER 5

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CHAPTER 6

PERSONS AND AGENCIES CONTACTED

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CHAPTER 7

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APPENDIX A

NELLIS AFB WINDO PROJECTS

Nellis AFB

MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF000081	2004	RESTRIPE RED FLAG PKG LOT	A1
NAFB	RKMF010063	2004	RPR MPF PARKING LOT B-20	A1
NAFB	RKMF010136	2004	RPR HOLLYWOOD BLVD	A1
NAFB	RKMF020040	2004	RPR ROADS WSA	A1
NAFB	RKMF020041	2004	RPR PKG LOT UNION PLAZA B-552	A1
NAFB	RKMF020048	2004	RPR PARKING LOT BLDG 282	A1
NAFB	RKMF020049	2004	RPR SEWER MANHOLES	A1
NAFB	RKMF030007	2004	RPR F/L USTS COVERS	A1
NAFB	RKMF030105	2004	RPR PAVEMENTS ENLISTED CLUB	A1
NAFB	RKMF030165B	2004	RPR PARKING LOT BLDG 340	A1
NAFB	RKMF030181	2004	RPR SEWER LINES BLDG 470	A1
NAFB	RKMF036903	2004	Repair Ground Fuels Storage, Fac 891-893	A1
NAFB	RKMF036906	2004	Repair Ground Fuels System, Fac 891, 893 & 895	A1
NAFB	RKMF040011	2004	RPR O'BANNION ROAD	A1
NAFB	RKMF040052	2004	RPR EXTERIOR BLDG 454	A1
NAFB	RKMF040119	2004	CONSTRUCT BOUNDARY FENCE AREA 3	A1
NAFB	RKMF040121	2004	REPAIR NORTH BOUNDARY FENCE AREA 1	A1
NAFB	RKMF040122	2004	REPAIR WEST BOUNDARY FENCE AREA 1	A1
NAFB	RKMF040135	2004	REPAIR PIPELINE PLAYGROUND BLDG 600	A1
NAFB	RKMF040144	2004	REPAIR RAMP BLDG 10108	A1
NAFB	RKMF040150	2004	REPAIR EXTERIOR BLDG 623 HONOR GUARD	A1
NAFB	RKMF930153	2004	RPR VARIOUS RDS & PARKING	A1
NAFB	RKMF950152	2004	RPR PAVEMENTS BLDG 196	A1
NAFB	RKMF960041	2004	ALT TYNDALL GATE APPROACH LANE	A1
NAFB	RKMF960061	2004	RPR PAVEMENTS VARIOUS ROADS	A1
NAFB	RKMF960079	2004	INST PERIMETER RD LTG MSA	A1
NAFB	RKMF970066	2004	RPR PARKING AREA BLDG 288	A1
NAFB	RKMF970068	2004	RPR SUPPLY PRKG LOT BLDG 856	A1
NAFB	RKMF970098	2004	RPR PERIMETER ROAD MSA	A1
NAFB	RKMF975003	2004	INST LIGHTING ATHLETIC CTS	A1
NAFB	RKMF980009	2004	RPR BASE PERIMETER ROAD	A1
NAFB	RKMF980059	2004	RPR PAVEMENT BLDG 10108	A1
NAFB	RKMF990051	2004	RPR PAVEMENT VARIOUS FACS	A1
NAFB	RKMF999001	2004	Repair Containment AST Wall, NAFB Eastside Storage, NEL 99-6	A1
NAFB	RKMF000032	2005	RPR SERVICING PAD LOX PLANT	A1
NAFB	RKMF010062	2005	RPR LORING AVE	A1
NAFB	RKMF010110	2005	REPAIR CDC PLAYGROUND	A1
NAFB	RKMF020040	2005	RPR PARKING LOT WSA BLDG 120	A1
NAFB	RKMF030141	2005	REPAIR PAVEMENTS PARKING LOTS	A1
NAFB	RKMF040007	2005	Repair Boundary Fence Area 1	A1
NAFB	RKMF040083	2005	Alter Parking Lot, Essential Facilities	A1
NAFB	RKMF040096	2005	ALTER ENTRAPMENT AREA	A1
NAFB	RKMF040099	2005	REPAIR ENTRY CONTROL POINT PAVING	A1

Nellis AFB

MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF040121	2005	Repair North Boundary Fence Area 1	A1
NAFB	RKMF040122	2005	Repair West Boundary Fence Area 1	A1
NAFB	RKMF040123	2005	Repair Boundary Fence Area 3	A1
NAFB	RKMF040163	2005	REPAIR PAVEMENTS TTF BLDG 470	A1
NAFB	RKMF046111	2005	Replace Regulated UST, Fac 10322	A1
NAFB	RKMF050001	2005	RPR VOQ PARKING LOT BLDG 540	A1
NAFB	RKMF050010	2005	RPR FILLSTAND PAVEMENTS	A1
NAFB	RKMF050013	2005	RPR WATER MAIN, WELL 7	A1
NAFB	RKMF056918	2005	Repair Truck Offloading Secondary Containment, Fac 606	A1
NAFB	RKMF960062	2005	REPAIR PAVEMENTS VARIOUS ROADS	A1
NAFB	RKMF960065	2005	CNST CARPORT VEHICLE OPS	A1
NAFB	RKMF970049	2005	RPR VAR PAVEMENTS & PADS MSA	A1
NAFB	RKMF980067	2005	RPR 5TH STREET WSA	A1
NAFB	RKMF010061	2006	RPR N STREET	A1
NAFB	RKMF060001	2006	RPR HOLLOMAN AVE	A1
NAFB	RKMF060002	2006	RPR GRISSOM AVE	A1
NAFB	RKMF950073	2006	RPR PERIMETER FENCE	A1
NAFB	RKMF980056	2006	RPR PAVING OPEN STORAGE	A1
NAFB	RKMF980068	2006	RPR PAVEMENT VARIOUS FAC	A1
NAFB	RKMF980100	2006	RPR PARKING LOTS DORM 332 & VQ 540	A1
NAFB	RKMF000007	2004	RPR VOQ 545	A2
NAFB	RKMF000013	2004	RPR BOILER PLANT BLDG 625	A2
NAFB	RKMF000014	2004	RPR INSULATION BLDG 240	A2
NAFB	RKMF000026	2004	RPR TNG/LOCKER RM BLDG 10234	A2
NAFB	RKMF000027	2004	RPR ELECT DIST CIRCUIT #3	A2
NAFB	RKMF000028	2004	RPR SPRINKLER SYS BLDG 595	A2
NAFB	RKMF000030	2004	RPR CHILD DEVELOPMENT CENTER	A2
NAFB	RKMF000043	2004	RPR HVAC BLDG 620 AWC	A2
NAFB	RKMF000063	2004	RPR LOGISTICS TRNG FLT B 262	A2
NAFB	RKMF000110	2004	RPR HIGH VOLTAGE SWITCH, CIR 1	A2
NAFB	RKMF000112	2004	RPR POWER & SECURITY SPIRNET	A2
NAFB	RKMF000123	2004	RPR MUNS MTN FAC BLDG 10439	A2
NAFB	RKMF010009	2004	INST IMIS ALLIED SUPPORT	A2
NAFB	RKMF010035	2004	RPR ELECTRICAL WIRING, BLDG 270	A2
NAFB	RKMF010045	2004	INST WIRE WAY COMM P6	A2
NAFB	RKMF010064	2004	RPR BASE FIRE REPORTING SYS	A2
NAFB	RKMF010067	2004	RPR ROOF BLDG 625	A2
NAFB	RKMF010068	2004	RPR CONDUCTOR FEEDER 5	A2
NAFB	RKMF010083	2004	RPR FIRE PROTECTION, WEAPONS MAINTENANCE FACILITIES	A2
NAFB	RKMF020046	2004	INST FOAM UNDERWING SYS B-245	A2
NAFB	RKMF020048	2004	UPGRADE SEWER PUMPING STATIONS	A2
NAFB	RKMF020057	2004	ALTER OPEN STORAGE RM 107, BLDG 284	A2
NAFB	RKMF020058	2004	RPR BATHROOMS, BLDG 809	A2

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF020110	2004	RPR MUNITIONS CONTROL FACILITY, BLDG 10405	A2
NAFB	RKMF030003	2004	INST FIRE SUPP SYS BLDG 232	A2
NAFB	RKMF030005	2004	RPR PUMP MOTORS	A2
NAFB	RKMF030006	2004	SEAL TANK CHIMES	A2
NAFB	RKMF030068	2004	RPR ROOF VEH MAINTENANCE SHOP, BLDG 10116	A2
NAFB	RKMF030093	2004	RPR GYM LOCKER ROOMS, BLDG 432	A2
NAFB	RKMF030094	2004	RPR SECURITY CONTROL CENTER, BLDG 10309	A2
NAFB	RKMF030100P2	2004	REPAIR COMMUNITY SUPPORT CENTER BLDG 340, PHASE 2	A2
NAFB	RKMF030100P3	2004	REPAIR COMMUNITY SUPPORT CENTER, PHASE III	A2
NAFB	RKMF030114	2004	RPR OSI FACILITY BLDG 828	A2
NAFB	RKMF030126A	2004	REPAIR HVAC SYSTEM BLDG 47, 547 INTEL SQ	A2
NAFB	RKMF030143	2004	RPR INTERIOR VQ BLDG 545	A2
NAFB	RKMF030144	2004	REPAIR ROOFS VARIOUS FAC BLDGS 265, 245, 290, 451, 589, 270	A2
NAFB	RKMF030159	2004	RPR BASE CONTRACTING FACILITY BLDG 588	A2
NAFB	RKMF030168	2004	RPR CONSOLIDATED SUPPORT CENTER BLDG 625	A2
NAFB	RKMF030168B	2004	REPAIR ENVIRONMENTAL OFFICES, BLDG 625	A2
NAFB	RKMF030168C	2004	REPAIR OFFICES, BLDG 625	A2
NAFB	RKMF030169	2004	REPAIR ALS, BLDG 625	A2
NAFB	RKMF030179	2004	REPAIR BATHROOMS BLDG 250	A2
NAFB	RKMF030191	2004	RPR KITCHEN & TILE BLDG 601	A2
NAFB	RKMF030203	2004	RPR HVAC RED FLAG, BLDG 201	A2
NAFB	RKMF040001	2004	RPR ROOF VARIOUS FACILITIES	A2
NAFB	RKMF040005B	2004	RPR WS ADVERSARY SUPPORT FACILITY BLDG 118	A2
NAFB	RKMF040014	2004	RPR ROOF MAINT DOCK	A2
NAFB	RKMF040015	2004	RPR ROOF VARIOUS FACILITIES	A2
NAFB	RKMF040016	2004	RPR ROOF BASE COLD STORAGE FAC	A2
NAFB	RKMF040017	2004	RPR ROOF VOQ 545	A2
NAFB	RKMF040018	2004	RPR ROOF BASE EQUIP/SUPPLY WAREHOUSE	A2
NAFB	RKMF040019	2004	RPR ROOF VARIOUS FACILITIES	A2
NAFB	RKMF040021	2004	RPR CIRCUIT 1 NEUTRAL	A2
NAFB	RKMF040022	2004	RPR CIRCUIT 2 TYNDALL AVE	A2
NAFB	RKMF040029	2004	REPAIR JDICE FACILITY BLDG 584	A2
NAFB	RKMF040035	2004	REPAIR TEMPORARY LODGING FACILITY 2945	A2
NAFB	RKMF040037	2004	RPR SECURITY FORCES FACILITY BLDG 2	A2
NAFB	RKMF040038	2004	RPR SECURITY FORCES FACILITY BLDG 780	A2
NAFB	RKMF040039	2004	Renovate Bldg 1100	A2
NAFB	RKMF040043	2004	REPAIR RESTROOMS BLDG 20	A2
NAFB	RKMF040047	2004	REPAIR INTERIOR, BLDG 215	A2
NAFB	RKMF040048	2004	REPAIR VARIOUS GREASE TRAPS, BLDG 567, 601	A2
NAFB	RKMF040058	2004	REPAIR HVAC BLDG 252	A2
NAFB	RKMF040059	2004	REPAIR INTERIOR BLDG 585	A2
NAFB	RKMF040066	2004	RENOVATE BOWLING CENTER, BLDG 300	A2

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF040066A	2004	REPAIR BOWLING CENTER BLDG 300 ASBESTOS REMOVAL	A2
NAFB	RKMF040068	2004	REPAIR HVAC MXMT FACILITY BLDG 270	A2
NAFB	RKMF040070	2004	REPAIR INTERIOR BLDG 226 (414 CTS)	A2
NAFB	RKMF040071	2004	REPAIR INTERIOR BLDG 264	A2
NAFB	RKMF040072	2004	REPAIR CARPETING VARIOUS FAC 292, 10412, 282, 66	A2
NAFB	RKMF040079	2004	REPAIR INTERIOR BLDG 332	A2
NAFB	RKMF040080	2004	REPAIR OLYMPIC POOL LOCKER ROOMS BLDG 438	A2
NAFB	RKMF040081	2004	UPGRADE ELECTRICAL SYSTEM, BLDG 432	A2
NAFB	RKMF040086	2004	Repair MSA ECP Bldg 10300	A2
NAFB	RKMF040087	2004	REPAIR MOBILITY PROCESSING CENTER BLDG 811	A2
NAFB	RKMF040101	2004	REPAIR HANGER DOORS BLDG 292	A2
NAFB	RKMF040106	2004	REPAIR INTERIOR BLDG 780	A2
NAFB	RKMF040107	2004	RENOVATE CC CONFERENCE ROOM BLDG 620	A2
NAFB	RKMF040112	2004	INSTALL 5 SEC DELAY HANGER 61664	A2
NAFB	RKMF040113	2004	REPAIR DORMS ASBESTOS ABATEMENT	A2
NAFB	RKMF040115	2004	REPAIR ROOF BLDG 10405	A2
NAFB	RKMF040116	2004	REPAIR RESTROOMS BLDG 312 FSC	A2
NAFB	RKMF040117	2004	REPAIR WALKWAY BASE OPS BLDG 805	A2
NAFB	RKMF040124	2004	REPAIR ROOF BLDG 2064, CONTROL TOWER	A2
NAFB	RKMF040128	2004	REPAIR INTERIOR BLDG 336	A2
NAFB	RKMF040129	2004	REPAIR RESTROOMS BLDG 10416	A2
NAFB	RKMF040136	2004	REPAIR INTERIOR BLDG 600 & 601	A2
NAFB	RKMF040141	2004	REPAIR HANGAR LIGHTING BLDG 283	A2
NAFB	RKMF040142	2004	REPAIR RESTROOMS BLDG 415 (AGE)	A2
NAFB	RKMF040151	2004	REPAIR INTERIOR BLDG 201 FIRST FLOOR	A2
NAFB	RKMF040152	2004	REPAIR SCIF AREA BLDG 201 SECOND FLOOR	A2
NAFB	RKMF040153	2004	REAPIR TDY LIFE SUPPORT AREA BLDG 224	A2
NAFB	RKMF045001	2004	Convert Bldg 350, Desert Oasis Pizza	A2
NAFB	RKMF940020	2004	RPR WATER SYSTEM HYDRANTS AND VALVES	A2
NAFB	RKMF970083	2004	INST WET PIPE SPRINKLER SYS	A2
NAFB	RKMF970086	2004	RPR ROOFS BLDGS 18 & 780	A2
NAFB	RKMF970087	2004	RPR ROOFS BLDGS 436 & 438	A2
NAFB	RKMF970106	2004	RPR FLOORS DORM 786,792,794	A2
NAFB	RKMF970108	2004	RPR FLOORS DORM 784	A2
NAFB	RKMF980008A	2004	RPR ROOF BLDG 224	A2
NAFB	RKMF980044	2004	RPR INTERIOR DORM 745	A2
NAFB	RKMF980118	2004	RPR HVAC DINING HALL 567	A2
NAFB	RKMF980138	2004	RPR WATER PUMP STATION	A2
NAFB	RKMF980144	2004	RPR TRANSFORMERS SUBSTATION	A2
NAFB	RKMF980145	2004	RPR TAP CHANGERS SUBSTATION	A2
NAFB	RKMF980147	2004	RPR AREA II GYM FLOOR	A2
NAFB	RKMF990001	2004	RPR ROOFS VARIOUS FACILITIES	A2
NAFB	RKMF990041	2004	RPR WELL #11	A2

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF990047	2004	RPR PLUMBING BLDG 415	A2
NAFB	RKMF990048	2004	RPR PLUMBING BLDG 245	A2
NAFB	RKMF990054	2004	RPR CRASH RESCUE TNG FAC	A2
NAFB	RKMF000008	2005	RPR INTERIOR VOQ 523	A2
NAFB	RKMF000011	2005	RPR WINDOWS DORM 725	A2
NAFB	RKMF000050	2005	RPR SHOWERS TLF VAR FAC	A2
NAFB	RKMF010001	2005	RPR ROOFS VARIOUS FACILITIES	A2
NAFB	RKMF010034	2005	RPR DRAINAGE SYS BLDG 10325	A2
NAFB	RKMF010066	2005	RPR ROOFS VARIOUS FACILITIES	A2
NAFB	RKMF010074	2005	RPR FIRE ALARM SYS BLDG 567	A2
NAFB	RKMF030004	2005	RPR ROOFS VARIOUS FACILITIES	A2
NAFB	RKMF030010	2005	RPR MANIFOLD OFF LOAD SYS	A2
NAFB	RKMF030045	2005	REPAIR INTERIOR BLDG 290	A2
NAFB	RKMF030070	2005	RPR ROOF VARIOUS FACILITIES	A2
NAFB	RKMF030150	2005	REPAIR ISOLATION VALVES AREA III	A2
NAFB	RKMF030173	2005	RPR RESTROOMS BLDG 1100	A2
NAFB	RKMF030184	2005	RPR BATHROOMS BLDG 264	A2
NAFB	RKMF040028	2005	VAQ (Union Plaza), Bldg 552	A2
NAFB	RKMF040040	2005	REPAIR SERVICES PIZZA FACILITY BLDG 350	A2
NAFB	RKMF040044	2005	REPAIR CEILING BLDG 20	A2
NAFB	RKMF040045	2005	REPAIR INTERIOR BLDG 775	A2
NAFB	RKMF040060	2005	REPAIR INTERIOR BLDG 586	A2
NAFB	RKMF040074	2005	CONSTRUCT MANTRAP BLDG 282	A2
NAFB	RKMF040097	2005	CONSTRUCT VEHICLE SAFE HAVEN	A2
NAFB	RKMF040156	2005	REPAIR ROOF BLDG 610	A2
NAFB	RKMF040159	2005	CONSTRUCT CHAPEL ELEVATOR BLDG 615	A2
NAFB	RKMF040161	2005	REPAIR GARAGE DOOR BLDG 220	A2
NAFB	RKMF040162	2005	REPAIR HANGAR DOORS BLDG 292	A2
NAFB	RKMF040164	2005	REPAIR EXTERIOR SECURITY LIGHTING TTF BLDG 470	A2
NAFB	RKMF040167	2005	REPAIR INTERIOR BLDG 124	A2
NAFB	RKMF040169	2005	REPAIR RESTROOMS BLDG 258	A2
NAFB	RKMF040171	2005	REPAIR RESTROOMS BLDG 877	A2
NAFB	RKMF040175	2005	REPAIR ROOF BLDG 201	A2
NAFB	RKMF040176	2005	CONSTRUCT VAULTS BLDG 100	A2
NAFB	RKMF040177	2005	REPAIR WOMEN'S RESTROOM BLDG 100	A2
NAFB	RKMF040183	2005	REPAIR VARIOUS ROOFS	A2
NAFB	RKMF040184	2005	REPAIR INTERIOR BLDG 2345	A2
NAFB	RKMF050002	2005	RPR ROOF BE MAINT SHOP, BLDG 4792	A2
NAFB	RKMF050003	2005	RPR ROOF VAQ 552	A2
NAFB	RKMF050005	2005	RPR ROOF HQ 57 MXG FACILITY, BLDG 328	A2
NAFB	RKMF050008	2005	RPR ROOF COMM FACILITY	A2
NAFB	RKMF050011	2005	RPL FILTERS, BULK STORAGE FILLSTANDS	A2
NAFB	RKMF950049	2005	RPR INTERIOR FAC 10412 & 10416	A2

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF970013	2005	RPR ROOF MAINT HANGAR 245	A2
NAFB	RKMF980040	2005	RPR BLACKJACK HVAC	A2
NAFB	RKMF980050	2005	RPR HVAC BASE CHAPEL	A2
NAFB	RKMF980098	2005	RPR INTERIOR VOQ BLDG 538	A2
NAFB	RKMF980112	2005	RPR ROOFS VARIOUS DORMS	A2
NAFB	RKMF980139	2005	RPR WATER PUMP STATION	A2
NAFB	RKMF990079	2005	RPR HOSPITAL PHARMACY	A2
NAFB	RKMF000005	2006	RPR WSA SENSOR SYSTEM	A2
NAFB	RKMF000021	2006	RPR FIRE PROT SYS BLDG 200	A2
NAFB	RKMF010016	2006	RPR FIRE SUPPRESSION BLDG 811	A2
NAFB	RKMF010044	2006	RPR COMMAND POST	A2
NAFB	RKMF060004	2006	RPR ROOF AREA II GYMNASIUM	A2
NAFB	RKMF060005	2006	RPR ROOF BASE OPERATIONS FACILITIES	A2
NAFB	RKMF060006	2006	RPR ROOF DORM 715	A2
NAFB	RKMF060007	2006	RPR ROOF DORMS 725 & 745	A2
NAFB	RKMF930043	2006	RPR KITCHEN CABINETS VOQS	A2
NAFB	RKMF970011	2006	RPR ROOF BLDG 340	A2
NAFB	RKMF970058	2006	RPR HVAC BLDG 10309	A2
NAFB	RKMF970065	2006	RPR ELECTRICAL BLDG 252	A2
NAFB	RKMF972004	2006	RPR WELL #3	A2
NAFB	RKMF980028	2006	RPR WATER TANKS	A2
NAFB	RKMF980041	2006	RPR RED FORCE HVAC	A2
NAFB	RKMF980049	2006	RPR HVAC SUPPORT FAC BLDG 625	A2
NAFB	RKMF980055	2006	RPR HVAC LIBRARY BLDG 312	A2
NAFB	RKMF990040	2006	RPR WELL #12	A2
NAFB	RKMF990042	2006	RPR WELL #1	A2
NAFB	RKMF990043	2006	RPR WELL #14	A2
NAFB	RKMF990044	2006	RPR WELL #13	A2
NAFB	RKMF990061	2006	REPAIR LAUNDRY ROOM BLDG 727	A2
NAFB	RKMF010076	2004	CNST ARMORY BLDG 10304	A2
NAFB	RKMF040061	2004	CONSTRUCT SCIF BLDG 61663*	A2
NAFB	RKMF000009	2004	MTN EXTERIOR VAR FAC	B1
NAFB	RKMF000092	2004	MTN LANDSCAPE TLFS	B1
NAFB	RKMF010043	2004	MTN WATER TOWER EXTERIOR	B1
NAFB	RKMF010133	2004	MTN EXTERIOR VARIOUS BASE FACILITIES	B1
NAFB	RKMF030152	2004	MTN LANDSCAPING BLDG 878	B1
NAFB	RKMF040042	2004	MAINTAIN LANDSCAPING, ROLLERBLADE TRAIL	B1
NAFB	RKMF040120	2004	MAINTAIN ROAD STRIPING	B1
NAFB	RKMF040123	2004	REPAIR BOUNDARY FENCE AREA 3	B1
NAFB	RKMF970123	2004	MTN ECT VARIOUS FACILITIES IDIQ	B1
NAFB	RKMF980125	2004	MTN EXT VARIOUS FACILITIES	B1
NAFB	RKMF990063	2004	MTN EXTERIOR VAR FACILITIES	B1
NAFB	RKMF020070	2005	LANDSCAPE BLDG 625 NORTH PARKING LOT	B1

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF020072	2005	MAINTAIN LANDSCAPING KINLEY AVE	B1
NAFB	RKMF030145	2005	MAINTAIN LANDSCAPING, VARIOUS FACILITIES	B1
NAFB	RKMF030165	2005	MAINTAIN LANDSCAPING AND REPAIR PARKING LOT B340	B1
NAFB	RKMF970061	2005	MTN EXTERIOR WATER TANKS	B1
NAFB	RKMF980120	2006	MTN EXT WATER TANK 562	B1
NAFB	RKMF980123	2006	MTN EXT WATER TANK 10420	B1
NAFB	RKMF980127	2006	MTN EXT WATER TANK 2004	B1
NAFB	RKMF980128	2006	MTN EXT WATER TANK 1725	B1
NAFB	RKMF980129	2006	MTN EXT WATER TANKS 61669	B1
NAFB	RKMF000012	2004	MTN CRU FLOORS BLDG 868	B2
NAFB	RKMF000049	2004	MTN CRU FLOORS	B2
NAFB	RKMF000052	2004	MTN INTERIOR VAR FACILITIES	B2
NAFB	RKMF010017	2004	MTN CRU FLOOR BLDG 290	B2
NAFB	RKMF020166	2004	MTN FLOORS VAR FACS B415, 283, 256, 239, 290, 262, 264	B2
NAFB	RKMF030089	2004	MTN CRU FLOORS BCE SHOPS, BLDG 807	B2
NAFB	RKMF030177	2004	MTN CRU FLOOR HANGAR 239	B2
NAFB	RKMF040069	2004	MAINTAIN INTERIOR HANGAR 292	B2
NAFB	RKMF040140	2004	MAINTAIN FLOORING BLDG 423	B2
NAFB	RKMF040145	2004	MAINTAIN FLOORING BLDG 232	B2
NAFB	RKMF986102	2004	UST RPR/INSPECTIONS	B2
NAFB	RKMF030146	2005	MAINTAIN EXTERIOR, VARIOUS FACILITIES	B2
NAFB	RKMF030192	2005	MAINTAIN EXTERIOR BLDGS 10108 & 10418	B2
NAFB	RKMF030195	2005	MAINTAIN EXTERIOR BLDG 217	B2
NAFB	RKMF030198	2005	MAINTAIN EXTERIOR BLDG 615	B2
NAFB	RKMF030199	2005	MAINTAIN EXTERIOR BLDG 124	B2
NAFB	RKMF030200	2005	MAINTAIN EXTERIOR BLDG 1028	B2
NAFB	RKMF030201	2005	MAINTAIN EXTERIOR BLDG 840	B2
NAFB	RKMF040166	2005	MAINTAIN CRU FLOORING BLDG 858	B2
NAFB	RKMF040180	2005	MAINTAIN EXTERIOR BLDG 1042	B2
NAFB	RKMF040181	2005	MAINTAIN EXTERIOR WATER TOWERS	B2
NAFB	RKMF040182	2005	MAINTAIN INTERIOR WATER TOWERS	B2
NAFB	RKMF950121	2005	MTN EXTERIOR CLUBHOUSE B-1619	B2
NAFB	RKMF990060	2006	MTN INTERIOR WALLS VAR FAC	B2
NAFB	RKMF990062	2006	MTN INTERIOR VAR FACILITIES	B2
NAFB	RKMF000006	2004	CNST PATIO BLDG 805	C
NAFB	RKMF000010	2004	CNST PAD BLDG 10425	C
NAFB	RKMF010018	2004	CNST PARKING LOT BLDG 61633	C
NAFB	RKMF010029	2004	CNST WELL AREA II	C
NAFB	RKMF010030	2004	CNST CRS PAD (CMS)	C
NAFB	RKMF010031	2004	CNST RED HORSE CHECKPOINT	C
NAFB	RKMF030135	2004	CONSTRUCT LODA FENCE	C
NAFB	RKMF030189	2004	CONSTRUCT SABER COMPOUND	C
NAFB	RKMF030194	2004	CNST JEFX PARKING LOT	C

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF040057	2004	CONSTRUCT ENGINE SHOP WAREHOUSE	C
NAFB	RKMF040063	2004	CONSTRUCT 555TH RED HORSE CANTONMENTS FACILITY	C
NAFB	RKMF040064	2004	CONSTRUCT FLIGHTLINE RUNNING TRACK	C
NAFB	RKMF040082	2004	CONSTRUCT ROLLERBLADE TRAIL	C
NAFB	RKMF040088	2004	Construct 6 CTS I-Fact Facility	C
NAFB	RKMF040095	2004	CONSTRUCT LIVE FIRE SHOOT HOUSE	C
NAFB	RKMF040100	2004	CONSTRUCT CAOC COMPOUND	C
NAFB	RKMF040104	2004	CONST RED FLAG FACILITY, CCD	C
NAFB	RKMF040111	2004	CONSTRUCT 555 RHS AIRFIELDS FACILITY	C
NAFB	RKMF040132	2004	CONSTRUCT PLAYGROUND CDC I	C
NAFB	RKMF040137	2004	INST PLAYGROUND SURFACING AND SHADE STRUCTURES B600 & B601	C
NAFB	RKMF040139	2004	CONSTRUCT RAPPEL TOWER 58 RQS	C
NAFB	RKMF040147	2004	CONSTRUCT COMM STORAGE FACILITY	C
NAFB	RKMF040148	2004	CONSTRUCT FUELS MAINTENANCE FAC	C
NAFB	RKMF040154	2004	CONSTRUCT JOINT MARSHALLING YARD 66 RQS	C
NAFB	RKMF040165	2004	CONSTRUCT SCIF BLDG 585 AFOTEC*	C
NAFB	RKMF065001	2004	Construct Temporary Lodging Facs	C
NAFB	RKMF095001	2004	Construct Rv Park Addition	C
NAFB	RKMF980066	2004	CNST ENCLOSED GARAGES BLDG 837	C
NAFB	RKMF000034	2005	CNST CATM RANGE TOWER	C
NAFB	RKMF040051	2005	CONSTRUCT INTERIM 15 RS FACILITIES	C
NAFB	RKMF040093	2005	CONSTRUCT EXPLOSIVE STORAGE FACILITY BLDG 10520	C
NAFB	RKMF040094	2005	CONSTRUCT EXPLOSIVE STORAGE FACILITY BLDG 11143	C
NAFB	RKMF040098	2005	CONSTRUCT CATM TRAINING FACILITY	C
NAFB	RKMF040119	2005	Construct Boundary Fence Area 3	C
NAFB	RKMF040174	2005	CONSTRUCT F-86 PEDESTAL	C
NAFB	RKMF040179	2005	CONSTRUCT SUNSHADE OLYMPIC POOL BLDG 436	C
NAFB	RKMF045003	2005	Construct Shoppette	C
NAFB	RKMF053005	2005	Construct CAOC Facility	C
NAFB	RKMF960040	2005	CNST HELICOPTER PARKING	C
NAFB	RKMF990064	2005	CNST ROLLER HOCKEY FIELD	C
NAFB	RKMF000019	2006	CNST PAVED STORAGE AREA II	C
NAFB	RKMF000020	2006	CNST WALL AGE YARD BLDG 258	C
NAFB	RKMF010021	2006	CNST FAC BULK STORAGE AREA	C
NAFB	RKMF020041	2006	CNST CATM RANGE FENCING	C
NAFB	RKMF020052	2006	RELOCATE LOX/LIN & HYDRAZINE PLANTS	C
NAFB	RKMF030009	2006	RELOCATE GROUND PROD STATION	C
NAFB	RKMF950043	2006	CNST PKG AREA BLDG 2349	C
NAFB	RKMF970039	2006	LANDSCAPE BASE GYM	C
NAFB	RKMF970060	2006	CNST CVRD PKG FIRE DEPT B-2093	C
NAFB	RKMF990013	2006	CNST PICNIC AREAS FREEDOM PARK	C
NAFB	RKMF020013		Cnst Fire Station Area II	C
NAFB	RKMF020046		Cnst Entry Control Point Range Road	C

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF020095		Cnst AWDS Sq Ops, Bldg 454	C
NAFB	RKMF020117		Cnst Satellite Pharmacy Bldg 340	C
NAFB	RKMF030170		Construct ALS Auditorium	C
NAFB	RKMF030171		Construct SF Warehouse, Area III	C
NAFB	RKMF990065		Cnst Chapel Meeting Fac	C
NAFB	RKMF000029	2004	CNST ADDN BLDG 1602	D
NAFB	RKMF005002	2004	Golf Course Clubhouse Expansion	D
NAFB	RKMF019001	2004	ADD/ALT COMMISSARY BLDG 603	D
NAFB	RKMF030073	2004	CNST ADDITION BLDG 856	D
NAFB	RKMF030121	2004	CONSTRUCT ADDITION WARRIOR PREP CENTER BLDG 451	D
NAFB	RKMF040005A	2004	Construct Addition Ws Adversary Support Fac/Bldg 118	D
NAFB	RKMF040030	2004	CONSTRUCT SCIF ADDITION BLDG 584	D
NAFB	RKMF040036	2004	CNST ADDITION FITNESS CENTER BLDG 432	D
NAFB	RKMF040127	2004	CONSTRUCT ASRL EXTENSION BLDG 1114	D
NAFB	RKMF040155	2004	CONSTRUCT AWNING BLDG 61694	D
NAFB	RKMF980058	2004	CNST ADDN FUELS MGT BLDG 856	D
NAFB	RKMF040065	2005	CONSTRUCT ADDITION BLDG 825 BIO ENVIRONMENTAL	D
NAFB	RKMF040185	2005	CONSTRUCT ADDITION BLDG 2345	D
NAFB	RKMF950110	2005	CNST ADDN LANTIRN FACILITY	D
NAFB	RKMF980054	2005	CNST ADDN FIRE MTN SHOP	D
NAFB	RKMF950044	2006	CNST ADDN CONTR TWR SIMULATOR	D
NAFB	RKMF010019		Cnst Addn Bldg 312	D
NAFB	RKMF010020		Cnst Addn Bldg 833	D
NAFB	RKMF020032		Cnst Addn VM Shop 10143	D
NAFB	RKMF030155		POC-N Expansion Bldg 215	D
NAFB	RKMF040005		Add to and Alter Squad Ops, Bldg 118	D
NAFB	RKMF930179		Cnst Addn HQ Group Bldg 780	D
NAFB	RKMF040168	2005	CONSTRUCT ADDITIONAL PARKING BLDG 425	D
NAFB	RKMF020107	2004	INST CHECK VALVES, OFFLOAD SYSTEM MANIFOLD	E
NAFB	RKMF040002	2004	INST EMERGENCY POWER WELLS	E
NAFB	RKMF040053B	2004	INSTALL SPRINKLER SYSTEM BLDG 200	E
NAFB	RKMF040056	2004	CONSTRUCT ELECTRICAL FOR CAOC-N COMPOUND	E
NAFB	RKMF040105	2004	INSTALL AUTOMATED BOLLARD SYSTEM, WSA	E
NAFB	RKMF040108	2004	INSTALL MODULAR OFFICES BLDG 61685	E
NAFB	RKMF040114	2004	INSTALL HVAC UNITS CAOC COMPOUND	E
NAFB	RKMF040125	2004	INSTALL RUBBERIZED FLOORING BLDG 10450	E
NAFB	RKMF040126	2004	Install Sunshades Various Gates	E
NAFB	RKMF040133	2004	INSTALL OVERHEAD LIGHTING BLDG 194	E
NAFB	RKMF040134	2004	INSTALL WALK-IN FREEZER BLDG 601	E
NAFB	RKMF040143	2004	INSTALL AC BLDG 415 SUPPORT SECTION	E
NAFB	RKMF990056	2004	INST FIRE HYDRANT	E
NAFB	RKMF010065	2005	INST FOAM UNDERWING SYS B-262	E

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF020045	2005	INST FOAM UNDERWING SYS B-292	E
NAFB	RKMF020054	2005	Install Air Intake Protection, Various Facilities	E
NAFB	RKMF020152	2005	INST SINK, BLDG 423	E
NAFB	RKMF040089	2005	INSTALL RUBBERIZED FLOORING CARDIO ROOM BLDG 432	E
NAFB	RKMF040160	2005	INSTALL NOC BACKUP A/C UNIT BLDG 201	E
NAFB	RKMF040170	2005	INSTALL WATER CHILLER BLDG 270	E
NAFB	RKMF040172	2005	INSTALL WINDOWS BLDG 100	E
NAFB	RKMF050007	2005	INST CATHODIC PROTECTION GAS RISERS, BASEWIDE	E
NAFB	RKMF050009	2005	INST TRUCK OVERFILL & GROUND PROVING SYS, BULK FILLSTAND	E
NAFB	RKMF920131	2005	INST HVAC BLDG 826	E
NAFB	RKMF920182	2005	INST EXTRACTION FANS	E
NAFB	RKMF930081	2005	INST WET PIPE SPKR SYS B-470	E
NAFB	RKMF940045	2005	INST LIGHTING VEHICLE OPS	E
NAFB	RKMF970059	2005	INST ROLLUP DOOR BLDG 61634	E
NAFB	RKMF970084	2005	INST FIRE ALARM PANELS VAR FAC	E
NAFB	RKMF990006	2005	INST HIX UNDERWING SYS B-270	E
NAFB	RKMF990007	2005	INST HIX SYS B-290	E
NAFB	RKMF990008	2005	INST HIX SYS B-239	E
NAFB	RKMF000082	2006	INST LIGHTING PROTECTION STORAGE VAR FAC	E
NAFB	RKMF020136	2006	INST ROLL-UP DOOR, BLDG 10305	E
NAFB	RKMF030011	2006	INST SKID MT OFFLOAD SYS	E
NAFB	RKMF910106	2006	INST LIGHTS CHAPEL PRKG LOT	E
NAFB	RKMF960057	2006	INST 3-25K ABOVEGROUND TANKS	E
NAFB	RKMF970084A	2006	INST FIRE ALARM PANELS VAR FAC	E
NAFB	RKMF980019	2006	INST CATH PROT JP-8 FUEL SYS	E
NAFB	RKMF980029	2006	INST FIRE SUPPRESSION SYS BLDG 220	E
NAFB	RKMF980030	2006	INST PARKING LOT LIGHTS B-334	E
NAFB	RKMF040090	2005	INSTALL RUBBERIZED EXT. QTR. MILE TRACK	E
NAFB	RKMF040092	2005	INSTALL EXTERIOR LIGHTING, AREA II PAD	E
NAFB	RKMF013801	2006	Relocate Transformers	E
NAFB	RKMF000041	2004	CNST Revetment LOLA Support Fac	F
NAFB	RKMF000044	2004	MTN LOLA STRIPING	F
NAFB	RKMF000069	2004	MTN AIRFIELD PAVEMENTS	F
NAFB	RKMF000084	2004	PAINT TAXI LINES F/L	F
NAFB	RKMF010042	2004	CNST SHOULDERS RUNWAY 03L/21R	F
NAFB	RKMF013801	2004	RELOCATE RUNWAY LIGHTING TRANSFORMERS	F
NAFB	RKMF020043	2004	RPR R/W SHOULDER 03L/21R	F
NAFB	RKMF030054	2004	CONSTRUCT LOLA BOMBER PAD EXPANSION	F
NAFB	RKMF030056	2004	CNST TAXIWAY G EXTENSION-GOLF PAD	F
NAFB	RKMF040012	2004	GROOVE RUNWAY 21R/03L	F
NAFB	RKMF040020	2004	RPR AIRFIELD LIGHTING CIRCUIT CABLES	F
NAFB	RKMF040077	2004	MTN AIRFIELD PAVEMENTS	F

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MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
NAFB	RKMF040078	2004	MTN AIRFIELD PAVEMENTS	F
NAFB	RKMF040138	2004	MAINTAIN AIRFIELD PAVEMENTS	F
NAFB		2004	REPAIR LIGHTING MAIN APRON	F
NAFB	RKMF930144	2004	RPR AIRFIELD ACCESS ROAD	F
NAFB	RKMF970050	2004	MTN AIRFIELD SHOULDERS	F
NAFB	RKMF970124	2004	RPR VAR AIRFIELD PAVEMENTS	F
NAFB	RKMF970126	2004	RPR JOINT SEALS VAR PAVEMENTS	F
NAFB	RKMF980031	2004	INST TAXIWAY EDGE LIGHTING	F
NAFB	RKMF990002	2004	RPR TAXIWAY F	F
NAFB	RKMF030055	2005	CNST ALTERNATE HOT CARGO PAD EXTENSION	F
NAFB	RKMF040084	2005	CONSTRUCT FLIGHTLINE FENCE	F
NAFB	RKMF040173	2005	CONSTRUCT LOLA ARMS ADDITION	F
NAFB	RKMF050012	2005	SEAL TANK SADDLES EASTSIDE REVETMENTS	F
NAFB	RKMF930162	2005	CNST CRYOGENICS SER AREA LOLA	F
NAFB	RKMF010053	2006	RPR TAXIWAY B LOLA	F
NAFB	RKMF010078	2006	RPR DRAINAGE AIRFIELD	F
NAFB	RKMF010801	2006	RELOCATE AIRFIELD TRANSFORMERS & SWITCHES	F
NAFB	RKMF030032	2006	INSTALL GATES FLIGHTLINE	F
NAFB	RKMF060003	2006	RPR MAIN APRON ROWS 42-44	F
NAFB	RKMF980070	2006	RPR PAD 10100 AREA	F
NAFB	RKMF030071		Construct ILS Support Facility	F
NAFB	RKMF040130	2005	REPAIR SEWER LINES AREA II	G
NAFB	RKMF970022	2005	INST CATM RANGE UTILITIES	G
NAFB	RKMF860051	2006	RPR WATER LINES CRAIG ROAD	G
NAFB	RKMF000002	2005	COMM Fclty, Bldg 839	H
NAFB	RKMF020040	2005	Fireman Tng Fclty, Fac 2185	H
NAFB	RKMF040158	2005	Area II Guard Shack, Bldg 10111	H
NAFB	RKMF040188	2005	Chaff And Flare Facility Bldg 288	H
NAFB	RKMF046112	2005	Remove Non-Regulated USTs, NAFB	H
NAFB	RKMF20057001	2005	LTM LF-01, 02, 05 and 34	I
NAFB	RKMF20057003	2005	RA-O ST-27, SS-28, ST-44, and SS-46	I
NAFB	RKMF20057802	2005	PA/SI Boresight Pits 1, 2 and 3	I

NTTR

MAP ID#	PROJECT #	FY	PROJECT TITLE	Type
TPECR	RKXF046920	2004	Repair Military Service Station, Fac 81022, TPECR, NEL 04-17	A1
TPECR	RKXF018002	2004	ALT BLDG 2405 SILVER FLAG ALPHA	A2
TPECR	RKXF046934	2004	Repair Bottom Loading Pantograph, Fac 81022b, TPECR	A2
TPECR	RKXF038005	2005	RPR WATER STORAGE PUMPS, PT BRAVO	A2
TPECR	RKXF968013	2006	RPR VM FACILITY TPECR	A2
TPECR	RKXF998001	2004	CNST SOUTH RANGE WELLS	C
TPECR	RKXF20057002	2005	SI Cactus Springs Spur	C
TPECR	RKXF898005	2005	CNST FENCE RANGE 4807 W	C
TPECR	RKXF998014	2005	CNST CE COVERED STORAGE TPECR	C
TPECR	RKXF898015	2006	INST IDS EQUIP MULTI WTCRC	E
TPECR	RKXF988007	2006	INST FIRE PROT SYS COMM	E
TPECR	RKXF978003	2004	RPR TTR R/W T/W SHOULDERS	F
TPECR	RKXF988006	2005	CNST K-SPANS/RAMP DESERT ROCK	F
TPECR	RKXF968010	2005	RPR PRIMARY CABLE GPN-25	G
TPECR	RKXF20057001	2005	PA/SI FAC Hill & Target II-3 Spillout	I

TTR

PROJECT #	FY	PROJECT TITLE	Type
WZVS046931	2004	Repair Military Service Station, Fac 528, TTR, NEL 04-18	A1
WZVS046934	2004	Repair Diesel Loading Pantograph System, NEL 04-8	A1
WZVS046941	2004	API 653 Repairs Tank No. 4, TTR	A1
WZVS046942	2004	API 653 Repairs Tank No. 5, TTR	A1
WZVS046943	2004	API 653 Repairs Tank No. 6, TTR	A1
WZVS046960	2004	API 570 Pipeline Repairs, TTR	A1
WZVV048007	2004	REPLACE O/H GAP FILLER TPECR	A1
WZVV048009	2004	REPAIR MANCAMP PARKING AREAS	A1
WZVS046940	2004	Repair Tank No. 3, TTR (Bottom Floor Replacement, API 653 Repairs)	A2
WZVV048008	2004	MAINTAIN PARKING AREAS, TTR	B1
WZVV048013	2004	CONSTRUCT ADDITIONAL PARKING BLDG 120, TTR	C
WZVV053201		Diningt Hall, TTRv (1) 01-DS-COP-xxxx, (2) 01-DS-FOC-xxxx (3) 01-DAT-LAN-	C
WZVV053202		Fire Station, TTR (1) 01-DS-COP-xxxx (2) 01-DS-FOC - xxxx (3) 01-DAT-LAN-xxxx	C
WZVV048014	2005	CONSTRUCT LOCKER ROOM ADDITION BLDG 500	D
WZVS046100AA	2005	Install Arsenic Removal Systems	E
WZVV038001	2004	Const BAK 12 Barrier Huts	F
WZVV058008	2005	Relocate Trans In Clear Zone	F
WZVV058009	2005	Relocate ILS at TTR 26' Suggest	F
WZVV998013	2005	RPR APRON TTR	F
WZVW028009	2005	Civilian Camp, Bldg 723	H
WZVW028010	2005	Civilian Camp, Bldg 738	H
WZVW028011	2005	Dh, AMN (Det), Bldg 740	H
WZVW028012	2005	Civilian Camp, Bldg 748	H
WZVW028013	2005	Civilian Camp, Bldg 749	H
WZVW028014	2005	Civilian Camp, Bldg 801	H
WZVW028015	2005	Civilian Camp, Bldg 803	H
WZVW028016	2005	Civilian Camp, Bldg 804	H
WZVW028017	2005	Civilian Camp, Bldg 805	H
WZVW028018	2005	Civilian Camp, Bldg 806	H

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PROJECT #	FY	PROJECT TITLE	Type
LKTC026950	2004	API 653 Repairs, Tanks 1 & 3, Fac 653, Bulk Storage, ISAFAF, NEL 1 04-1	A1
LKTC031002	2004	RPR PARKING LOT BLDG 85	A1
LKTC031003	2004	RPR PARKING LOT BLDG 65	A1
LKTC031007	2004	RPR GROUND PROD SYS PIPING	A1
LKTC031010	2004	RPR TRANSFER SYSTEM	A1
LKTC031011	2004	RPR FUEL TANKS 1, 2, & 3	A1
LKTC031030	2004	RPR BASE WELLS, ISAFAF	A1
LKTC036900	2004	Repair Hydrant System, Fac 653, ISAFAF (Pantographs To Code, Extend Pipelines To Accommodate Large Planes), NEL 03-14	A1
LKTC036902	2004	Repair Return To Bulk Fuel Piping, Fac 653, ISAFAF, NEL 03-11	A1
LKTC036904	2004	Repair Ground Products Piping, Fac 660, ISAFAF, NEL 03-13	A1
LKTC041002	2004	RPR PERIMETER RD	A1
LKTC041010	2004	REPAIR RANGE 65 ROAD	A1
LKTC046911	2004	Correct Piping Deficiencies, Fac 653, Bulk Storage, ISAFAF, NEL 04-16	A1
LKTC981010A	2004	RPR PARKING LOTS VAR FAC	A1
LKTC021005	2005	RPR PARKING LOT BLDG 24	A1
LKTC031045	2005	REPAIR PAVEMENTS VARIOUS FACILITIES	A1
LKTC046001	2005	REMOVE 2 HEATING OIL USTS & REPLACE WITH ASTS, FAC 24 & 225, ISAFAF	A1
LKTC981010	2005	RPR PARKING LOT BLDG 50	A1
LKTC011008	2006	RPR PLASI WITH PAPI	A1
LKTC061001	2006	RPR ROAD TO TACAN OUTSIDE C2	A1
LKTC991008	2006	RPR EAST PERIMETER RD ISAFAF	A1
LKTC001009	2004	RPR ELECTRICAL DISTR ISAFAF	A2
LKTC006100	2004	REPLACE PAINT BOOTH, ISAFAF	A2
LKTC011002	2004	RPR F/L ELECT DIST U/G ISAFAF	A2
LKTC031005	2004	INST RECEIPT FILTRATION	A2
LKTC031012	2004	INST FIRE SUPPRESSION SYS B-39	A2
LKTC031013	2004	RPR ROOFS VARIOUS FACILITIES	A2
LKTC031014B	2004	RPR FIRE STATION, BLDG 85	A2
LKTC031016	2004	INST FIRE SUPPRESSION SYSTEM	A2
LKTC036903	2004	Repair Emergency Shutoffs, Fac 653 & 660, ISAFAF (Tie All Shutoffs To One Power Source), NEL 03-9	A2
LKTC041003	2004	RPR ROOFS VARIOUS FACILITIES	A2
LKTC041005B	2004	RPR UAV SQUADRON BLDG 718	A2
LKTC041018	2004	REPAIR BATTLELAB HQ FACILITY BLDG 271	A2
LKTC041020	2004	REPAIR VISITING QUARTERS BLDG 4 & 5	A2
LKTC041021	2004	Repair Predator Support Center Bldg 273	A2
LKTC041025	2004	REPAIR BLDG 65	A2
LKTC051004	2004	REPAIR UAV SQUADRON BLDG 707	A2
LKTC051012	2004	REPAIR SEWAGE TREATMENT FACILITY	A2

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PROJECT #	FY	PROJECT TITLE	Type
LKTC991009	2004	INST SPRINKLER SYS K-SPAN FAC	A2
LKTC001010	2005	RPR WATER LINES ISAFAF	A2
LKTC001017	2005	RPR ROOF BLDG 24 ISAFAF	A2
LKTC001018	2005	RPR ROOF BLDG 85 ISAFAF	A2
LKTC001020	2005	RPR ROOF BLDG 91	A2
LKTC031041	2005	REPAIR ACADEMIC FACILITY BLDG 39	A2
LKTC043104	2005	Swim Pool Consol, Bldg 10	A2
LKTC051002	2005	RPR ROOFS VARIOUS FACILITIES	A2
LKTC056104	2005	REPLACE NON-COMPLIANT GASOLINE DISPENSERS	A2
LKTC001012	2006	RPR WTR SERVICE LINE ISAFAF	A2
LKTC001021	2006	RPR ROOF BLDG 65	A2
LKTC001022	2006	RPR ROOF BLDG 228	A2
LKTC011010	2006	RPR FLIGHT ELECT DIST U/G	A2
LKTC021007	2006	RPR GRAVITY COLLECTION SYS	A2
LKTC971009	2006	RPR ROOFS VAR FAC ISAFAF	A2
LKTC971009A	2006	RPR ROOF BLDG 127	A2
LKTC981035	2004	MTN EXT WATER TANK 102	B1
LKTC981036	2004	MTN EXT WATER TANK 105	B1
LKTC053907	2005	MAINTAIN VEGETATION	B1
LKTC031044	2005	MAINTAIN EXTERIOR VARIOUS FACILITIES	B2
LKTC031008	2004	CORROSION CONTROL POL TANK	C
LKTC031024	2004	CNST AGE FACILITY AND YARD	C
LKTC031026	2004	CNST MUNITIONS MAINTENANCE ADMIN FACILITY	C
LKTC031028	2004	CNST MUNITIONS IGLOO	C
LKTC041009	2004	CONSTRUCT FLIGHT KITCHEN	C
LKTC041014	2004	CONSTRUCT TECH PAD	C
LKTC041023	2004	CONSTRUCT GCTS HEADQUARTERS FACILITY	C
LKTC041027	2004	CONSTRUCT EQUIPMENT REPAIR PADS, BLDG 227	C
LKTC041028	2004	CONSTRUCT FENCING FIRE TRAINING AREA & GCTS	C
LKTC046912	2004	Construct Loading/Offloading Containment, Fac 648, ISAFAF	C
LKTC046913	2004	POL Truck Parking Containment, Fac 653, ISAFAF, NEL 04-2	C
LKTC021002	2005	CNST FIRING PADS SFA	C
LKTC051007	2005	CONSTRUCT PREDATOR SATCOM PAD ISAFAF	C
LKTC981009	2005	CNST STORAGE FAC 67	C
LKTC021001	2006	CNST CANOPIES SFA	C

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PROJECT #	FY	PROJECT TITLE	Type
LKTC021016B	2006	CNST PARKING LOT AME/ACADEMICS FACILITY	C
LKTC031032		Cnst GCTS Admin/HQ Facility	C
LKTC041005A	2004	CNST ADDITION UAV SQUADRON BLDG 718	D
LKTC041008		Const Add Fire Sta, Bldg 85 (1) 01-DS-COP-Bldg 151 (2) 01-DS-FOC-Bldg 151	D
LKTC031014A	2004	CNST ADDITION FIRE STATION, BLDG 85	D
LKTC036905	2004	Install Product Recovery System, ISAFAF (500k Tank On Side Of Dike To Collect Product), NEL 03-10	E
LKTC041026	2004	INSTALL CURBS & GUTTERS VARIOUS STREETS ISAFAF	E
LKTC041030	2004	INSTALL CURBS & GUTTERS VARIOUS STREETS ISAFAF	E
LKTC041031	2004	INSTALL CURBS & GUTTERS VARIOUS STREETS ISAFAF	E
LKTC046910	2004	Install Pantographs, Bulk Storage, ISAFAF, NEL 04-15	E
LKTC001016	2005	INST FIRE SUP SYS ISAFAF	E
LKTC041013	2005	Install Security Upgrades, Main Gate Bldg 1901	E
LKTC001024	2004	MTN A/F INFIELD DRAINAGE ISAF	F
LKTC011001	2004	RPR RUNWAY LIGHTING ISAFAF	F
LKTC031001	2004	RPR OVERLAY R/W 08-26	F
LKTC031015	2004	Airfield Lighting System	F
LKTC031017	2004	Rpr BAK 12 Arresting Barriers	F
LKTC031031	2004	CNST AIRCRAFT RESTRAINT SYSTEM	F
LKTC031035	2004	INSTALL TAXIWAY B & C EDGE LIGHTS	F
LKTC033804	2004	Relocate Holding Pad	F
LKTC041001	2004	RPR LOLA SHOULDERS	F
LKTC911002	2004	RPR AIRCRAFT APRON	F
LKTC971013	2004	RPR RUNWAY 08/26	F
LKTC981005	2004	INST T/W & RAMP EDGE LIGHTING	F
LKTC011007	2005	RPR THRESHOLD LIGHTS	F
LKTC041006	2005	REPAIR TAXIWAYS	F
LKTC051001	2005	RPR OVERLAY T/W A & D	F
LKTC051011	2005	INSTALL EDGE LIGHTS RPV LOLA	F
LKTC051013	2005	RELOCATE TRANSEIVER AND SWITCH	F
LKTC041017	2004	CONSTRUCT SWITCHGEAR/UNDERGROUND UTILITIES	G
LKTC041024	2004	CONSTRUCT MSA UTILITIES VARIOUS FACILITIES	G
LKTC041012	2005	CONSTRUCT UTILITY IMPROVEMENTS NORTHSIDE	G
LKTC001007	2006	MTN ELECTRICAL POLES ISAFAF	G
LKTC056931	2005	Remove Abandoned USTs, Bulk Storage, ISAFAF	H
LKTC20057001	2005	LTM LF-01, ISAFAF	I

APPENDIX B

ENVIRONMENTAL CHECKLIST

ENVIRONMENTAL PERMIT SCREENING MODEL FOR
NELLIS AIR FORCE BASE

TABLE OF CONTENTS

INSTRUCTIONS FOR USE

This environmental permit screening model has been prepared to assist project engineers and programmers at Nellis Air Force Base (AFB) in determining which federal, state, or local environmental permitting and reporting requirements are applicable for base projects.

1. Complete each section.

The environmental permit screening model is divided into ten sections. Each section contains a list of questions designed to identify projects or components of projects that may require environmental permits, notifications or registrations. It is recommended that the user go through each section of the model for each project.

2. Answer appropriate questions only.

It is not necessary to answer all the questions in each section. If your response to a question directs you to another question or section, go directly to the beginning of that section or to the identified question. If your response to a question does not direct you to a specific question, **GO TO THE NEXT QUESTION**.

3. Complete the checklist.

A Permit Screening Model Checklist is provided in Appendix A. The checklist must be completed for each project and maintained in the project file to document that an environmental review has been performed.

4. Use the glossary.

Although this manual has been designed to minimize the use of "enviro-speak," the user of this manual must have an understanding of certain key regulatory terms. Key terms are italicized. All italicized words are defined in the glossary.

5. Read the regulations/talk to the experts.

The model is intended to be used as a preliminary screening tool. When a potential permit or reporting issue is identified, a regulatory citation and/or implementing agency is provided. The user should review this regulation and talk to the base environmental office who may wish to consult with the regulator before he/she makes a determination that a particular requirement does or does not apply.

6. Read the notes.

After some questions, notes are provided to better describe regulatory requirements and to assist the user in answering the questions in that section. Read the notes before deciding on your answer to a question.

7. Design requirements.

After some questions in the manual, information is presented regarding design requirements that may be applicable to a project. The user should be aware that the manual was intended to identify permitting and reporting requirements and these design references are not intended to be comprehensive.

8. Permit Applications

If the screening process identifies the need to obtain a permit, work with the Nellis AFB environmental office (99 CES/CEV) to apply for the permit.

SECTION 1

WATER

INDUSTRIAL WASTEWATER DISCHARGES

Will the project result in the *discharge* of any wastewaters from commercial or industrial processes to *ground* or *surface waters*? The *discharge* could be through a ditch, pipe or culvert, etc.

- If YES, Nellis AFB is issued a permit by the Clark County Sanitation District to discharge sanitary and industrial wastewater into the County's sewage collection system. The permit (CCSD-010) does not limit the amount of effluent that Nellis AFB can discharge. Contact 99 CES/CEVC for more information. .

- If NO, a state discharge permit is <u>not</u> required.

Will the project result in the *discharge* of commercial or industrial *process wastewaters* to a *treatment works*? Note: This *discharge* may reach the *treatment works* directly through a sewer connection or indirectly through an intermediate reservoir or storage unit.

- If YES, the project may require an approval, a new permit from the *treatment works*, or the modification of an existing permit from the *treatment works*. Contact 99 CES/CEVC or *treatment works* to determine the requirements.

- If NO, an industrial/commercial wastewater discharge permit/approval from a *treatment works* is <u>not</u> required.

SANITARY WASTEWATER

Will the project result in the *discharge* of any *sanitary wastewaters* (e.g., wastewater from sinks, showers, toilets, etc)?

- If YES, a permit may be required as outlined below.

  a) S*anitary wastewater* discharged to a *treatment works* may require modifying an existing permit or obtaining a new permit from the *treatment works.* Contact 99 CES/CEVC to determine requirements. See NAC 445A.254.

  b) *Sanitary wastewater* discharged to a septic system that in turn discharges to *surface waters* may require a permit. Contact 99 CES/CEVC. See NAC 445A.230 and NAC 445A.266.

  c) *Sanitary wastewaters* discharged directly to *surface water* may require a permit. Contact 99 CES/CEVC. See NAC 445A.230 and NAC 445A.266.

d) Discharges to a septic system that uses ground absorption may require a permit from the local county. Contact the base environmental office (99 CES/CEVC). See NAC 445A.228

- If NO, a *sanitary wastewater discharge* permit is <u>not</u> required.

STORMWATER DISCHARGES

Does the project involve clearing, grading, or excavation activities on a total land area greater than 5 acres?

- If YES, a stormwater permit or modification to an existing National Pollution Discharge Elimination System (NPDES) permit may be required. Contact the 99 CES/CEVC to determine requirements See NAC 445A.230 and NAC 445A.266.

Does the project involve the *construction* or modification of any of the following types of facilities:

— Transportation facilities which have vehicle maintenance, equipment cleaning or deicing (airfield) operations.

— *Hazardous waste* treatment, storage, or disposal facilities.

— Landfills, land application sites, open dumps.

— Recycling facilities, including metal scrap yards, battery reclaimers, salvage and junk yards (does not include gas stations or repair shops that collect tires or batteries).

— Steam electric power generating facilities, including coal handling sites.

— Electroplating, metal finishing facilities.

— Facilities whose effluent is otherwise subject to NPDES effluent standards.

— General warehousing and storage facilities or activities in which *stormwater* actually contacts materials, products, *material handling equipment or activities* or other associated industrial equipment.

- If YES, go to next question.

- If NO, a stormwater permit is <u>not</u> required.

Will the project result in the discharge of *stormwater* through a pipe, culvert or ditch to *surface waters* or to a separate storm sewer system?

- If YES, a stormwater permit or modification to an existing NPDES permit may be required. Contact 99 CES/CEVC, the base environmental office. See NAC 445A.230 and NAC 445A.266.
- If NO, a stormwater permit is <u>not</u> required.

DREDGE OR FILL ACTIVITIES

Does the project involve any type of *discharge* to *waters of the U.S.* (including *wetlands*)?

- If YES, a state water quality certification may be required. Contact the base environmental office. See Section 401 of the Clean Water Act (CWA) and NAC 445A.229.

- If NO, state water quality certification is <u>not</u> required.

Go to next question.

Does the project involve the *discharge* of dredged or *fill* materials into *waters of the U.S.* (including *wetlands*)?

- If YES, a dredge and fill permit may be required. Contact the base environmental office (99 CES/CEVC). See Section 404 of the CWA.
-

- If NO, a dredge and fill permit is <u>not</u> required.

Go to next question.

NOTE: The *discharge* of dredged or *fill* material may be associated with the *construction* of a dam, dike, causeway, bridge, river, or stream bank restoration projects.

Does the project involve the *obstruction* of any *waters of the U.S.*?

- If YES, a permit may be required. Contact (99 CES/CEVC). See Section 10 of the Rivers and Harbors Act and NAC 445A.229 and NAC 445A.266.

- If NO, a "Section 10" permit is <u>not</u> required.

Go to next question.

DRINKING WATER

Does the project involve the *construction* or modification of a *public water system*?

- If YES, the system may be subject to monitoring and reporting requirements. Contact (99 CES/CEVC). See 40 CFR 141 and NAC 445A.602.

- If NO, drinking water monitoring requirements are <u>not</u> applicable.

NOTE: 1) The use of lead pipe, solder or flux is not permitted in the installation or repair of a public water system. See 40 CFR 141.43(a)(1) and 141.43(d).

2) Where there is a threat of a cross connection with the drinking water system, back flow prevention devices must be installed.

SECTION 2

HAZARDOUS MATERIAL/HAZARDOUS WASTE/PCBs/OCDs

HAZARDOUS MATERIAL/HAZARDOUS WASTE/PCB USAGE

Will any chemicals, paints, paint thinners, ozone depleting substances (ODS), *PCB items* or other hazardous materials be used or stored at the facility or during the construction of the facility?

- If YES, contact 99 CES/CEVC to determine usage, storage, packaging, tracking, and disposal requirements applicable to these materials.

STORAGE OF HAZARDOUS WASTES/PCBs/ODS

Will the facility store *hazardous waste* for more than 90 days or out of service *PCB items* or PCBs for more than 1 year?

- If YES, a Resource Conservation and Recovery Act (RCRA) Treatment, Storage or Disposal (TSD) (for *hazardous waste*) and/or Toxic Substances Control Act (TSCA) Permit or modification to the existing facilities permit may be required. Contact the base environmental office (99 CES/CEVC). Exemptions exist for storage of small quantities of hazardous waste for more than 90 days. See 40 CFR 261.5 and 262.34 and 40 CFR 761.65. Note that 40 CFR Parts 260 to 270 are incorporated by reference in NAC 444.8632. See NAC 444.9485 and NAC 444.9535 for PCBs.

- If NO, a storage permit is <u>not</u> required, but depending on type of material and amount accumulated certain design requirements may have to be met for storage areas and containers. Contact 99 CES/CEVC. See 40 CFR 261.5, 262.34, and 264 and 40 CFR 761.65.

NOTE: Most ACC projects will not trigger hazardous waste or PCB storage permit requirements.

TREATMENT OF HAZARDOUS WASTE/PCBs/ODS

Will the facility treat *hazardous wastes* other than in a *totally enclosed treatment facility* or in an *elementary neutralization unit* or in a unit permitted under the CWA (see Section 1)? (NOTE: examples of potential treatment methods include: elementary neutralization, puncturing of aerosol cans, crushing of filters that contain listed hazardous wastes, incineration of hazardous waste, and open detonation of ordnance).

- If YES, a RCRA TSD, and/or a TSCA permit or a modification to the facility's existing permit may be required. Contact 99 CES/CEVC. See 40 CFR Parts 264 and 761 for design requirements. Note that 40 CFR Parts 260 to 270 are incorporated by reference in NAC 444.8632. See NAC 444.9485 and NAC 444.9535 for PCBs.

- If NO, a treatment permit is not required, but certain design requirements may have to be met for *totally enclosed treatment facilities* and *elementary neutralization units*. Contact the base environmental office (99 CES/CEVC)..

Will the facility treat *PCB items*?

- If YES, a TSCA treatment plant permit may be required. Contact 99 CES/CEVC. See 40 CFR 761.70 and NAC 444.9485 and NAC 444.9535.

- If NO, a TSCA treatment permit is not required.

NOTE: Most ACC projects will not trigger *hazardous waste* or PCB treatment permit requirements.

DISPOSAL OF HAZARDOUS WASTE AND PCBs

Will the facility be used for the *disposal* of *hazardous wastes* or *PCB items*?

- If YES, A RCRA TSD permit, or TSCA Permit, or a modification to the facilities existing permit may be required. Contact the base environmental office (99 CES/CEVC). See 40 CFR Parts 264 and 761 for design requirements. Note that 40 CFR Parts 260 to 270 are incorporated by reference in NAC 444.8632. See NAC 444.9485 for PCBs.

- If NO, a disposal permit is not required.

NOTE: Most ACC projects will not trigger *hazardous waste* or PCB *disposal* permit requirements.

SECTION 3

SOLID WASTE

In general, the key objective of solid waste management at any installation includes promoting reuse, recycling, and reclamation programs to the greatest extent possible. In disposing of solid waste, all efforts should be made to segregate the wastes to better dispose of these items. Waste can be segregated as: 1) biodegradable and 2) nonbiodegradable. **Biodegradable waste** includes organic waste, e.g. kitchen waste, vegetables, fruits, flowers, leaves from the garden, and paper. **Nonbiodegradable waste** can be further segregated into:

A. Recyclable waste – plastics, paper, glass, metal, etc.
B. Toxic waste – old medicines, paints, chemicals, bulbs, spray cans, fertilizer and pesticide containers, batteries, shoe polish.
C. Soiled – hospital waste such as cloth soiled with blood and other body fluids.

Toxic and soiled waste must be disposed of with utmost care. Note, disposal of municipal waste meet the criteria of 40 CFR 240 and 241, DOD 416.5.60, and AFI 32-7042.

For potential permitting needs, does any new project:

LANDFILLING

Does the project involve the *construction*, expansion, or alteration of any facility used for the *landfilling* of discarded materials (i.e., *solid waste*)?

- If YES, a Solid Waste Management Facility permit may be required. Contact 99 CES/CEVC. See NAC 444.6405 and 40 CFR 258.

INCINERATION

Does the project involve the *construction*, expansion, or alteration of any facility used for the *incineration* of discarded materials?

- If YES, a Solid Waste Management Facility permit may be required. Contact the base environmental office 99 CES/CEVC. See NAC 444.6405 and NAC 444.672.

TRANSFER

Does the project involve the *construction*, expansion, or alteration of any facility that will be used as a *transfer facility* for discarded materials?

- If YES, a Solid Waste Management Facility permit may be required. Contact 99 CES/CEVC, the base environmental office. See NAC 444.6405 and NAC 444.666.

COMPOSTING

Does the project involve the *construction*, expansion, or alteration of any facility used for the *composting* of discarded materials?

- If YES, a Solid Waste Management Facility permit may be required. Contact the base environmental office (99 CES/CEVC). See NAC 444.6405 and NAC 444.670.

LANDSPREADING

5) Does the project involve the *construction*, expansion, or alteration of any facility used for the storage, disposal, or treatment (including land spreading) of *septage*?

- If YES, a Solid Waste Management Facility permit may be required. Contact the base environmental office 99 CES/CEVC. See NAC 444.646.

MEDICAL WASTE

Does the project involve the *construction*, expansion, or alteration of any facility in which *medical waste* will be treated?

- If YES, a Solid Waste Management Facility permit may be required. Contact the base environmental office. See NAC 444.646.

Go to next question.

Does the project involve the *construction*, expansion, or alteration of any facility in which *medical waste* will be stored?

- If YES, a permit is not required, but certain Nevada Solid Waste Management Rules design requirements may apply to the storage area. Contact 99 CES/CEVC the base environmental office. See NAC 444.646.

WASTE TIRES

Does the project involve the *construction*, expansion, or alteration of any facility which will be used for the collection, processing, or disposal of *waste tires*?

- If YES, a Solid Waste Management Facility permit may be required. Contact 99 CES/CEVC the base environmental office. See NAC 444A.280. Permits may not be required at waste tire collection areas if less than 500 tires are kept on the premises.

USED OIL

Does the project involve the *construction*, expansion, or alteration of any facility which will be used for the collection of more than 6,000 gallons of *used oil* annually or the *recycling* of more than 10,000 gallons of *used oil* annually?

- If YES, the facility may be required to register or obtain a used oil facility permit. Contact the base environmental office (99 CES/CEVC). See 40 CFR 279 which has been adopted by reference in NAC 444.8632.

If NO to all questions in this section, a solid waste management facility permit is <u>not</u> required.

SECTION 4

AIR

Air emissions sources may be regulated based on the type of emission source, the type and/or quantity of pollutants being emitted, and the quality of air in the region where the emission source is located. The questions in this section are designed to identify sources that could potentially require a permit or modification to a permit. In order to determine actual permitting design requirements for sources which are identified, contact the 99 CES/CEVC and refer to the Clark County Air Quality Regulations.

In Las Vegas, any land disturbing activities 0.25 acres or greater or a building larger than 1,000 square feet will require a Dust Control Permit and the development of an accompanying Dust Mitigation Plan (DAQEM Construction Activities and Dust Control Handbook).

BOILERS

According to Section 49, subsection 49.3.1 applies to any new, modified, reconstructed, or replaced Boilers installed, modified, reconstructed, or replaced after January 1, 2004. For existing Boilers operational prior to January 1, 2004, the provisions of this Section shall become effective on January 1, 2006, in addition to any applicable NSPS or NESHAP requirements and apply to any stationary source on which construction commenced after January 1, 1992.

According to Subsection 49.3.2 any stationary source that has not conducted a performance test of each affected Boiler unit within 5 years prior to January 1, 2006, shall conduct a performance test of each affected Boiler unit in accordance with the requirements of Subsection 49.5 before January 1, 2006. In Subsection 49.3.3 any stationary source that has not conducted a burner efficiency test and inspection of each affected Boiler unit within 1 year prior to January 1, 2006 shall conduct a burner efficiency test and inspection in accordance with Subsection 49.6 before January 1, 2006.

For new projects:

Does the project involve the *construction* and/or modification of a boiler that will discharge or alter the discharge of an *air pollutant* to the *ambient air* through a stack chimney, vent, or other opening?

- If YES, a permit to construct, or a modification to an existing air emission source or facility permit may be required. Contact 99 CES/CEVC. See NAC 445B.287 through .336. See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

NOTE: See Clark County Air Regulations Section 49 (Air Emission Standards for Boilers and Steam Generators Burning Fossil Fuels (Clark County AQEM) for emission standards, performance testing, burner efficiency test, monitoring of operations, record keeping, and reporting and notifications for specific information.

INCINERATORS

Does the project involve the *construction* and/or modification of an incinerator that will discharge or alter the discharge of an *air pollutant* to the *ambient air* through a stack chimney, vent, or other opening?

- If YES, a permit to construct or a modification to an existing air emission source or facility permit may be required. Contact the base environmental office (99 CES/CEVC). See NAC 445B.287 through .336 and Clark County Air Regulations, Section 30. See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

FUEL BURNING EQUIPMENT

Does the project involve the *construction* and/or modification of other *fuel burning equipment* that will discharge or alter the discharge of an *air pollutant* to the *ambient air* through a stack chimney, vent, or other opening?

- If YES, a permit to construct or a modification to an existing air emission source or facility permit may be required. Contact the base environmental office (99 CES/CEVC). See NAC 445B.287 through .336 and Clark County Air Regulations, Section 28. See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

MISCELLANEOUS UNITS

Does the project involve the *construction* and/or modification of paint booths, vacuum sanders, fume hoods, bead blasters, emergency generators, woodworking facilities, non-HVAC exhaust systems or other sources of pollutants that will discharge or alter the discharge of an *air pollutant* to the *ambient air* through a stack chimney, vent, or other opening?

- If YES, a permit to construct or a modification to an existing air emission source or facility permit may be required. Contact 99 CES/CEVC. See NAC 445B.287 through .336 and Clark County Air Regulations. See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

PETROLEUM STORAGE

Does the project involve the *construction* and/or modification of petroleum, oil, or lubricants (POL) tank/vessel that will discharge or alter the discharge of an *air pollutant* to the *ambient air* through a stack chimney, vent, or other opening?

- If YES, a permit to construct or a modification to an existing air emission source or facility permit may be required. Contact 99 CES/CEVC. See NAC 445B.22093. See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

Does the project involve the *construction* and/or modification of fuel handling facilities that will discharge or alter the discharge of an *air pollutant* to the *ambient air* through a stack chimney, vent, or other opening?

- If YES, a permit to construct or a modification to an existing air emission source or facility permit may be required. Contact the base environmental office (99 CES/CEVC). See NAC 445B.22093 See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

Does the project involve the *construction* and/or modification of *aboveground or underground storage tanks* that will discharge or alter the discharge of an *air pollutant* to the *ambient air* through a stack chimney, vent, or other opening?

- If YES, a permit to construct or a modification to an existing air emission source or facility permit may be required. Contact the base environmental office 99 CES/CEVC. See NAC 445B.22093. See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

JET ENGINE TEST FACILITIES

Does the project involve the *construction* and/or modification of jet engine test facilities (e.g., hush house) that will discharge or alter the discharge of an *air pollutant* to the *ambient air* through a stack chimney, vent, or other opening?

- If YES, a permit to construct or a modification to an existing air emission source or facility permit may be required. Contact 99 CES/CEVC. See NAC 445B.460. See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

OPEN BURNING

Will the project or the construction of the project involve the *open burning* of any materials?

- If YES, a permit or approval may be required. Contact 99 CES/CEVC. See NAC 445B.381 and local ordnances. See Appendix C for a listing of National Emission Standards for Hazardous Air Pollutants (NESHAPS) and Appendix D for a listing of Minimum Achievable Control Technology (MACT) Standards, Control Technique Guidelines (CTGs), Alternative Control Technology (ACT) Standards and New Source Performance (NSP) Standards.

If NO to any of the above, an air permit is <u>not</u> required.

SECTION 5

STORAGE TANKS

USTs

Does the project involve the *construction*, removal or modification of any *underground storage tanks (USTs)* or associated piping?

- If YES, go to next question.
- If NO, go to Question 4 (ASTs).

Will any of the *USTs* be (or have they been) used to store petroleum or a CERCLA *hazardous substance*? Note: *Hazardous substances* includes various types of hazardous chemicals as well as *hazardous waste*. The reference for the full listing can be found in the glossary.

- If YES, the *UST* system must be registered with the state of Nevada unless one of the following exemptions apply. Contact the base environmental office (99 CES/CEVC). See NAC 459.995, NAC 459.9929, and 40 CFR 280:
  - The *UST* is used to store *hazardous waste*,
  - The *UST* is a farm or residential tank of 1,100 gallon or less used for storing motor fuel for non-commercial purposes,
  - The *UST* is used for storing heating oil for consumptive use on premises where stored (e.g., the oil is used in a boiler, furnace, etc., at the site) except tanks having a capacity of more than 5,000 gallons and used for storing heating oil,
  - The *UST* will be used as a septic tank,
  - The *UST* will be used as part of a stormwater or wastewater collection system, or a permitted wastewater treatment facility,
  - The *UST* will be used as a flow through process tank,
  - The *UST* is in a basement or other area where it is above the surface of the floor,
  - The *UST* has a capacity of 110 gallons or less.
- If NO, *UST* system registration requirements are <u>not</u> applicable.

Will any of the *USTs* be (or have they been) used to store a *hazardous waste*?

- If YES, go to Section 2 (Hazardous Wastes) for permitting/reporting requirements. After determining *hazardous waste* requirements, go to Question 4 of this section.

- If NO, *hazardous waste UST* permit requirements are not applicable.

ASTs

Does the project involve the *construction*, removal or modifications of any *aboveground storage tank (AST)* or *AST* system?

- If YES, go to next question.

- If NO, no *AST* registration or design requirements are not applicable. Go to Section 6 (Pesticides).

Will any of the *ASTs* be (or have they been) used to store a *hazardous waste*?

- If YES, go to Section 2 (Hazardous Wastes). After determining *hazardous waste* requirements, go to next question of this section.

- If NO, *hazardous waste* permit requirements are not applicable.

Go to next question.

Will any of the *ASTs* be (or have they been) used to store *petroleum*?

- If YES, the *AST* may be subject to design requirements. Contact 99 CES/CEVC, the base environmental office. See 40 CFR 112.7. A Spill Prevention, Control and Countermeasure (SPCC) Plan may be required if:

  — The storage capacity of any individual *petroleum AST* exceeds 660 gallons, or

  — The storage capacity of all *petroleum ASTs* exceeds 1,320 gallons

- If NO, a SPCC plan is not required. However, the base environmental office should be contacted to confirm there are no state or local registration requirements.

Will any of the *ASTs* be (or have they been) used to store CERCLA *hazardous substances*?

- If YES, the base environmental office (99 CES/CEVC) should be contacted to confirm there are no state or local registration requirements.

- If NO, *AST* hazardous substance registration is not required.

NOTE: Petroleum storage tanks (ASTs and USTs) may also be subject to air emission regulations if the vapor pressure exceeds regulatory limits. See Section 4, Petroleum Storage.

SECTION 6

PESTICIDES

APPLICATION

Does the *construction* or maintenance of the facility require the application of *restricted use pesticides*?

- If YES, application of the pesticide must be conducted by a person who is certified in the use of that pesticide. Contact the base environmental office (99 CES/CEVC).. See NAC 555.600 through .700.

- If NO, a certification is not required.

USE

Will the facility be used for the storage, mixing and preparation of *restricted use pesticides*?

- If YES, the facility must be constructed in a manner that promotes cleanliness, safety and environmental protection. Contact 99 CES/CEVC, the base environmental office. See 40 CFR 171 and NAC 555.600 through .700 Labeling of storage, mixing and use areas may be required. Notification of local police and fire departments, hospitals and public health officials may be required.

- If NO, pesticide related permits are not required. Certain storage requirements may apply to the storage of non-restricted use pesticides. Contact the base environmental office (99 CES/CEVC).. See NAC 555.600 through .700.

SECTION 7

ASBESTOS

All buildings are required to have an asbestos survey performed prior to any renovation and/or demolition, there is no age restriction on the building (Clark County DAQEM, Asbestos NESHAP general information and instructions). A Demolition Notification Form needs to be submitted to Clark County AQEM 10 working days prior to any demolition activities.

ASBESTOS

Does the project involve a facility that contains *asbestos*?

- If YES, go to Question 2.
- If NO, *asbestos* related environmental notification or controls are not required. Go to Section 8 (Radioactive Materials).

REGULATED ASBESTOS CONTAINING MATERIALS

Does the project involve the *demolition* of *Regulated Asbestos Containing Materials (RACM)? RACM* includes materials such as spray-on insulation that crumble easily (releasing dust or fibers to the air), or materials such as floor tiles that do not crumble easily, but will be damaged or crushed or otherwise made to release dust or fibers to the air.

- If YES, RACM notification and/or emission controls will be required by submitting an Asbestos NESHAP Notification of Asbestos Abatement form to Clark County DAQEM 10 working days prior to removal. Contact the base environmental office (99 CES/CEVC) for further information. See 40 CFR 61.145 and 40 CFR 763 and NAC 618.954. Go to next question.
- If NO, *asbestos* related environmental notifications or controls are not required. Go to Section 8 (Radioactive Materials).

NOTE: Prior to design start, ascertain whether the building has been surveyed for asbestos from 99 CES/CEVC. If no *asbestos* survey has been conducted, than an *asbestos* survey of the building to be renovated must be conducted prior to design start.

NOTE: Occupational Safety and Health Administration (OSHA) worker health & safety standards (29 CFR 1926.1101) apply to projects involving the *demolition* or renovation of structures containing *asbestos* or potential *asbestos* containing materials, but those requirements are not included in this document.

Does the project involve the *renovation* of at least 80 linear meters of *RACM* on pipes or at least 15 m^2 of *RACM* on other facility components?

- If YES, notification and/or emission controls may be required. Contact the base environmental office (99 CES/CEVC). See 40 CFR 61.145 and 40 CFR 763 and NAC 618.954.
- If NO, *asbestos* related environmental notifications or controls are not required.

SECTION 8

RADIOACTIVE MATERIALS

Will the project involve the use, removal, storage, production or disposal of any *radioactive material*?

- If YES, a *radioactive materials* license may be required. Contact the base bioenvironmental office (99 CES/CEVC).and inform the base environmental office. See 10 CFR Parts 30-72 and NAC 459.212.

- If NO, a *radioactive materials* license is <u>not</u> required.

NOTE: Radioactive materials may be contained in: self luminous products, gas and aerosol detectors, luminous safety devices used in aircraft, ice detection devices, X-ray and other medical equipment, radiography equipment, radiation survey equipment.

SECTION 9

WILDLIFE AND WILDLIFE HABITAT

MIGRATORY BIRDS

1) Does the project involve the taking of any *migratory birds*, nests, or eggs?

- If YES, a migratory bird permit may be required. Contact 99 CES/CEVN, the base environmental office. See NAC 503.005 through .104 and 50 CFR 21.11 through 21.50.

- If NO, a *migratory bird* permit is <u>not</u> required.

THREATENED OR ENDANGERED SPECIES

Does the project involve the taking of any *threatened or endangered species*?

- If YES, a permit may be required. Contact 99 CES/CEVN, the base natural resources/environmental office. See Section 10 of the Endangered Species Act.

- If NO, a *threatened or endangered species* permit is <u>not</u> required.

SECTION 10

ENVIRONMENTAL RESTORATION PROGRAM (ERP) SITES

Will the project be located on or near an ERP site?

- If YES, appropriate clearances must be obtained from the base ERP office 99 CES/CEVR. The base Restoration Program Manager (RPM) must request a waiver from HQ ACC/CEVR prior to construction process.

- If NO, ERP clearances are not required.

GLOSSARY

Aboveground storage tank — a tank that is situated in such a way that the entire surface of the tank is above the plane of the ground and the entire surface area of the tank (including the bottom) can be visually inspected.

Air pollutant — an air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive substance or matter which is emitted into or otherwise enters the ambient air. The following is a list of federally regulated air pollutants:

(1) nitrogen oxides and volatile organic compounds;

(2) any air pollutants for which a national ambient air quality standard has been promulgated including PM-10, sulfur dioxide, carbon monoxide, and lead;

(3) any air pollutant or contaminant that is subject to any standard promulgated pursuant to Section III of the Clean Air Act including new source performance standards (NSPS) in 40 CFR part 60;

(4) any class I or II substance (ozone depleting) subject to a standard promulgated pursuant to Section 601(a) of the Clean Air Act (see Appendix B);

(5) any hazardous air pollutant identified in Section 112 of the Clean Air Act (see Appendix B).

Ambient air — that portion of the atmosphere outside of buildings and other enclosed structures, stacks or ducts, and which surrounds human, animal or plant life, or property.

Asbestos — substance comprised of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite (40 CFR 61.14).

Asbestos Containing Materials (ACM) — Any material or product which contains more than one percent asbestos.

Category 1 Nonfriable Asbestos Containing Material (ACM) — asbestos containing packing, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1% asbestos.

Category 2 Nonfriable Asbestos — any material including Category 1 nonfriable ACM containing more than 1% asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure (40 CFR 61.141).

Characteristic hazardous waste — any waste that exhibits the following characteristics:

- a liquid with a flash point of less than 140 F (40 CFR 261.21)
- a liquid with a pH less than or equal to 2 or greater than or equal to 12.5 (40 CFR 261.22).
- it is normally unstable, reacts violently with water, or is readily capable of detonation (40 CFR 261.23).

- an extract from a representative sample of the waste contains a listed contaminant at levels exceeding a given concentration (40 CFR 261.24).

Composting — the controlled decomposition of organic waste by naturally occurring bacteria.

Construction — change in method of operation or any physical change, including on-site fabrication, erection, installation, replacement, demolition, or modification of a source, that results in a change in emissions or affects the compliance status.

Corrective action — abatement measures associated with a response to a release of a hazardous waste, a hazardous substance or petroleum product.

Demolition — the wrecking or cutting out of any load supporting structural member of a facility (40 CFR 61.141).

Discharge — includes, but is not limited to, spilling, leaking, pumping, pouring, emitting, emptying or dumping.

Discrete conveyance — includes, but is not limited to, any pipe, ditch, channel, conduit, well, discrete fissure, or landfill leachate collection system through which wastewater or stormwater can be collected and discharged.

Disposal — the discharge, deposit, injection, dumping, spilling, leaking or placing of waste into or on any land or water so that it may enter the environment.

Elementary neutralization unit — a tank or container used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic (40 CFR 260.10).

Fill — any materials used to replace an aquatic area with dry land or to change the bottom elevation of a waterway.

Fluid — any material or substance that flows or moves whether in a semi-solid, liquid, sludge, gas, or any other form or state.

Friable Asbestos Material — any material that contains more than 1% asbestos by weight and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure (40 CFR 61.141).

Fuel burning equipment — equipment whose primary purpose is the production of energy or power from the combustion of fuel. The equipment is generally used for, but not limited to, heating water, generating or circulating steam, heating air as in warm air furnace, or furnishing process heat by transferring energy by fluids or through process vessel walls.

Groundwater — water below the ground surface in a zone of saturation (40 CFR 144.3; 40 CFR 258.2).

Hazardous substance — any substance designated pursuant to Section 101(14) of CERCLA (including any substance regulated as a hazardous waste).

Hazardous waste — for a material to be classified as a hazardous waste it must be a *solid waste* and either exhibit a hazardous characteristic or be listed in 40 CFR 261.3 (40 CFR 261.10).

Incineration — process of burning solid waste.

Industrial wastewater — wastewater generated in a commercial or industrial process (40 CFR 503.9[n])

Landfilling — placement of waste in or on the ground.

Lead Based Paint (LBP) — lead was used as an ingredient in paint until 1978. It is highly toxic and poses a health threat, especially to children. Workers should avoid breathing dusts of fumes. Workers are covered under OSHA and contractors should comply with all requirements of 29 CFR 1926.62. Food and cosmetics should not be stored or used in work areas.

Marine mammal —any mammal that is morphologically adapted to the marine environment, or primarily inhabits the marine environment, including any part of any such marine mammal.

Material handling equipment or activities — include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product.

Medical waste — waste which is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining to or in the production of testing of biologicals.

Migratory bird — any bird, including any part, nest, or egg of any such bird, designated as such in a treaty to which the United States is a party.

Obstruction — may include construction of a wharf, pier, breakwater or any other structure and the excavation, filling or any other alteration of a navigable water.

Open burning — any outdoor fire or outdoor smoke producing process from which air contaminants are emitted directly into the outdoor atmosphere.

Ozone depleting substances (ODS) — compounds that contribute to stratospheric ozone depletion. ODS include CFCs, HCFCs, halons, methyl bromide, carbon tetrachloride, and methyl chloroform. ODS are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. When they break down, they release chlorine or bromine atoms, which then deplete ozone.

PCB Item — an article, container, or equipment that deliberately or unintentionally contains or has in part of it any PCB or PCBs (40 CFR 761.3).

Polychlorinated Biphenyl (PCB) — a synthetic, organic chemical once widely used in electrical equipment, specialized hydraulic systems, heat transfer systems, and other industrial products. Highly toxic and a potent carcinogen. Any hazardous wastes that contain more than 50 parts per million of PCBs are subject to regulation under the Toxic Substances Control Act.

Pesticide — any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, or intended for use as a plant regulator, defoliant.

Petroleum — petroleum, including crude oil or any fraction thereof that is liquid at standard temperature and pressure conditions.

Pretreatment — the reduction in the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants to a publicly owned treatment works (40 CFR 403.3[q]).

Process wastewater — any water that comes into direct contact with, or results from the production or use of, any raw material, intermediate product, finished product, or waste product during manufacturing or processing (40 CFR 401.44[q]).

Public water system — a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Radioactive materials — any substance that emits radiation including alpha particles, beta particles, gamma rays, x-rays, neutrons, and other particles capable of producing ions. Radioactive materials that produce ionizing radiation are not covered in this manual (e.g. radio & microwaves).

Recycling — to prepare used oil for re-use as a petroleum product.

Regulated Asbestos Containing Material (RACM) — including friable asbestos material; category I nonfriable ACM that has become friable; Category I nonfriable ACM that has been subject to grinding, casting, cutting or abrading; and Category II nonfriable ACM that has a highly probability of becoming crumbled, crushed or pulverized (40 CFR 61.141).

Renovation — means the altering of a facility or facility component in any way, including the stripping or removal of RACM from a facility component.

Restricted use pesticides — See 40 CFR 171.2 for listing of Restricted Use Pesticides.

Runoff — rainwater, leachate, or other liquid that drains overland on any part of a ground surface and runs off of the ground surface (40 CFR 503.9[v]).

Sanitary wastewater — wastewater generated by toilets, sinks, and non-industrial/domestic activities; domestic sewage.

Scrap tires — tires that are no longer suitable for their original intended purpose because of wear or damage.

Septage — a fluid mixture of untreated and partially treated sewage solids, liquids, and sludge of human or domestic origin which is removed from a wastewater system.

Solid waste — any garbage refuse or sludge or other material that is either discarded or being accumulated, stored, or treated prior to being discarded or has served its original intended use and is generally discarded. Solid waste does not include wastewater discharges regulated under the Clean Water Act or domestic sewage and sludges generated in sanitary sewage collection systems designed to discharge effluents to surface waters. Includes industrial and municipal wastes.

Source — any stationary article, machine, process equipment, or other contrivance, or combination thereof, or any tank-truck, trailer or railroad car from which air pollutants emanate or are emitted, either directly or indirectly.

Store — hold hazardous waste for a temporary period. Accumulation time is calculated from the time hazardous waste is first place in a container.

Stormwater — stormwater runoff, snow melt runoff, and surface runoff and drainage (40 CFR 122.26[b][13]).

Surface water — all water that is open to the atmosphere and subject to surface runoff (40 CFR 141.2).

Threatened or endangered species — any species that is in danger of extinction throughout all or a significant portion of its range (see 50 CFR 81.1).

Totally enclosed treatment facility — facility for treatment of hazardous waste which is directly connected to any industrial production process (40 CFR 260.10).

Transfer station/Transfer facility — permanent structure with mechanical equipment used for the collection or compaction of solid waste prior to transportation for final disposal.

Treatment — any method, technique or process, including neutralization, designed to change the physical, chemical or biological character of a hazardous waste (40 CFR 260.10).

Treatment works — either a federally owned, publicly owned, or privately owned device or system used to treat either sanitary wastewater or a combination of sanitary wastewater and industrial or process wastewater (including recycle and reclaim) (40 CFR 503.9[aa]).

Underground Storage Tank (UST) — any one or combination of tanks (including underground pipes) the volume of which is 10% or more beneath the surface of the ground.

Underground well injection — the subsurface placement of fluids through a bored, drilled, or driven shaft (well), or a dug well, where the depth of the dug well is greater than the largest surface dimension.

Used oil — any oil which has been refined from crude oil or synthetic oil and, as a result of use, storage or handling has become unsuitable for its original purpose but which may be suitable for further use.

Wastewater reservoir — a pond, lagoon, retention basin, or other surface impoundment that is used to receive industrial or process wastewater.

Waters of the U.S. — all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including:

- all waters which are subject to the ebb and flow of the tide;
- all interstate waters, including interstate wetlands (see definition);

- all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters used for recreation, commercial fishing, and industrial purposes;

- impoundments of waters otherwise defined as waters of the U.S. under this definition;

- tributaries of waters identified above;

- territorial seas; and

- wetlands adjacent to waters other than wetlands identified above (40 CFR 122.2).

Wetlands — those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions; wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 122.2).

APPENDIX A

Environmental Permit Screening Model Checklist

ENVIRONMENTAL PERMIT SCREENING MODEL CHECKLIST

Base: _____

Project Name: _____

Project Number: _____

Project Location: _____

Date: _____

Name of Preparer: _____

	Potential Permit/Approval Requirements		Comments
	Y	N	
WATER (Section 1)			
Underground injection Well			
Industrial Wastewater			
Sanitary Wastewater			
Stormwater			
Dredge or Fill			
Drinking Water			
HAZARDOUS MATERIAL/HAZARDOUS WASTE/PCBs/ODSs (Section 2)			
Usage			
Tracking			
Storage			
Treatment			
Disposal			
SOLID WASTE (Section 3)			
Landfilling			
Incineration			
Transfer			
Composting			
Landspreading			
Medical Waste			
Scrap Tires			
Used Oil			

ENVIRONMENTAL PERMIT SCREENING MODEL CHECKLIST			
	Potential Permit/Approval Requirements		
	Y	N	Comments
AIR (Section 4)			
Boilers			
Incinerators			
Fuel Burning Equipment			
Miscellaneous Units			
Petroleum Storage			
Jet Engine Test Facilities			
Transportation Facilities			
STORAGE TANKS (Section 5)			
USTs			
ASTs			
PESTICIDES (Section 6)			
Application			
Use			
ASBESTOS (Section 7)			
Regulated Asbestos Containing Materials			
RADIOACTIVE MATERIALS (Section 8)			
Radioactive Materials			
WILDLIFE AND WILDLIFE HABITAT (Section 9)			
Migratory Birds			
Threatened or Endangered Species			
Marine Mammals			
INSTALLATION RESTORATION PROJECT (Section 10)			
Installation Restoration Project			

APPENDIX B

Regulated Air Pollutants

CLASS I OR II SUBSTANCES

Set forth below is the list of such class I or II substances:

1. CLASS I SUBSTANCES

Group I

chlorofluorocarbon-11 (CFC-11)
chlorofluorocarbon-12 (CFC-12)
chlorofluorocarbon-113 (CFC-13)
chlorofluorocarbon-114 (CFC-114)
chlorofluorocarbon-115 (CFC-115)

Group II

halon-1211
halon-1301
halon-2402

Group III

chlorofluorocarbon-13 (CFC-13)
chlorofluorocarbon-111 (CFC-111)
chlorofluorocarbon-112 (CFC-112)
chlorofluorocarbon-211 (CFC-211)
chlorofluorocarbon-212 (CFC-212)
chlorofluorocarbon-213 (CFC-213)
chlorofluorocarbon-214 (CFC-214)
chlorofluorocarbon-215 (CFC-215)
chlorofluorocarbon-216 (CFC-216)
chlorofluorocarbon-217 (CFC-217)

Group IV

carbon tetrachloride

Group V

methyl chloroform

2. CLASS II SUBSTANCES

hydrochlorofluorocarbon-21 (HCFC-21)
hydrochlorofluorocarbon-22 (HCFC-22)
hydrochlorofluorocarbon-31 (HCFC-31)
hydrochlorofluorocarbon-121 (HCFC-121)
hydrochlorofluorocarbon-122 (HCFC-122)
hydrochlorofluorocarbon-123 (HCFC-123)
hydrochlorofluorocarbon-124 (HCFC-124)
hydrochlorofluorocarbon-131 (HCFC-131)
hydrochlorofluorocarbon-132 (HCFC-132)
hydrochlorofluorocarbon-133 (HCFC-133)
hydrochlorofluorocarbon-141 (HCFC-141)
hydrochlorofluorocarbon-142 (HCFC-142)

CLASS II SUBSTANCES(cont.)

hydrochlorofluorocarbon-221 (HCFC-221)
hydrochlorofluorocarbon-222 (HCFC-222)
hydrochlorofluorocarbon-223 (HCFC-223)
hydrochlorofluorocarbon-224 (HCFC-224)
hydrochlorofluorocarbon-225 (HCFC-225)
hydrochlorofluorocarbon-226 (HCFC-226)
hydrochlorofluorocarbon-231 (HCFC-231)
hydrochlorofluorocarbon-232 (HCFC-232
hydrochlorofluorocarbon-233 (HCFC-233)
hydrochlorofluorocarbon-234 (HCFC-234)
hydrochlorofluorocarbon-235 (HCFC-235)
hydrochlorofluorocarbon-241 (HCFC-241)
hydrochlorofluorocarbon-242 (HCFC-243)
hydrochlorofluorocarbon-243 (HCFC-243)
hydrochlorofluorocarbon-244 (HCFC-244)
hydrochlorofluorocarbon-251 (HCFC-251)
hydrochlorofluorocarbon-252 (HCFC-253)
hydrochlorofluorocarbon-253 (HCFC-253)
hydrochlorofluorocarbon-261 (HCFC-261)
hydrochlorofluorocarbon-262 (HCFC-262)
hydrochlorofluorocarbon-271 (HCFC-271)

Note: This list includes the isomers of the substances listed above.

HAZARDOUS AIR POLLUTANTS

Set forth below is the list of hazardous air pollutants:

CAS Number	Chemical Name
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
08862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Amiline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis(2-ethylhexylphthalate (DEHP)

CAS Number	Chemical Name
542881	Bis(chloromethyl)ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanimide
105602	Caprolactam
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56234	Carbon tetrachloride
463581	Carbonal sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixture)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, sales and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106367	1,4-Dichlorobenzene(p)
91941	3,3-Dichlorobenzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
121697	N,N-Diethyl amiline (N,N-Dimethylamiline)
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine
60117	Dimethyl aminoszobenzene
119937	3,3-Dimethyl benzidine
79447	Dimethyl carbarnoyl chloride
68122	Dimethyl formamide
57147	1,1-Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dimitro-o-cresol, and salts

CAS Number	Chemical Name
51285	2,4-Dimitrophenol
121142	2,4-Dimitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydrin (1-Chloro-1,3-epoxypropane)
106887	1,2-Epoxybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl chloride (Chloromethane)
106943	Ethylene dibromide (Dibromoethane)
107062	Ethylene dichloride (1,2-dichloroethane)
107211	Ethylene glycol
151564	Ethylene imine (Azinadine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-disocyanate
680319	Hexomethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride (Hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methoxychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
78933	Methyl ethyl ketone (2-Butanone)
600344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis(2-chloroandline)
75092	Methylene chloride (Dichloromethane)
101688	Methylene diphenyl diisocyanate (MDI)
101779	4,4-Methylenedianiline

CAS Number	Chemical Name
91203	Naphthalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitropohenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthallic anhydride
1336363	Polychlorinated biphenyls (Aroclors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldhyde
114261	Propoxum (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine (2-Methyl azridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorobenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachloroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toludine
8001352	Toxaphene (Chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichlomethane
79016	Trichloroethylene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichloropehnol
121448	Triethylemine
1582098	Trifluralic
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylitone chloride (1,1-Dichloroethylene)
CAS Number	**Chemical Name**

1330207	Xylenes (isomers and mixture)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes
0	Antimony Compounds
0	Arsenic Compounds (inorganic including arsine)
0	Beryllium Compounds
0	Cadmium Compounds
0	Chromium Compounds
0	Cobalt Compounds
0	Coke Oven Emissions
0	Cyanide Compounds[a]
0	Glycol ethers[b]
0	Lead Compounds
0	Manganese Compounds
0	Mercury Compounds
0	Fine mineral fibers[c]
0	Nickel Compounds
0	Polycylic Organic Matter[d]
0	Radionuclides (including radon)[e]
0	Selenium Compounds

Note: For all listings above which contain the word "compounds" and for glycol ethers, the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical's infrastructure.

[a]X'CN where X=H' or any other group where a formal dissociation may occur.

For example KCN or $Ca(CN)_2$

[b]Includes mono- and di- ethers of ethylene, glycol, diethylene glycol, and triethylene glycol R-(OCH_2CH_2)n-OR' where

n= 1,2, or 3

R= alkyl or aryl groups

R'= R, H, or groups which, when removed, yield glycol ethers with the structure: R-(OCH_2CH)n-OH. Polymers are excluded from the glycol category.

[c]Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

[d]Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100°C.

[e]A type of atom which spontaneously undergoes radioactive decay.

APPENDIX C

National Emission Standards for Hazardous Air Pollutants

(40 CFR Part 61)

40 CFR PART 61 EPA Regulations on National Emission Standards for Hazardous Air Pollutants SUMMARY TABLE	
Subpart A	General Provisions
Subpart B	National Emission Standards for Radon Emissions from Underground Uranium Mines
Subpart C	National Emission Standards for Beryllium
Subpart D	National Emission Standards for Beryllium Rocket Motor Firing
Subpart E	National Emission Standards for Mercury
Subpart F	National Emission Standards for Vinyl Chloride
Subpart H	National Emission Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities
Subpart I	National Emission Standards for Radionuclide Emissions from Facilities Licensed by the Nuclear Regulatory Commission and Federal Facilities not Covered by Subpart H
Subpart J	National Emission Standards for Equipment Leaks (Fugitive Emission Sources) of Benzene
Subpart K	National Emission Standards for Radionuclide Emissions from Elemental Phosphate
Subpart L	National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants
Subpart M	National Emission Standards for Asbestos
Subpart N	National Emission Standards for Inorganic Arsenic Emissions from Glass Manufacturing Plants
Subpart O	National Emission Standards for Inorganic Arsenic Emissions from Primary Copper Smelters
Subpart P	National Emission Standards for Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities
Subpart Q	National Emission Standards for Radon Emissions from Department of Energy Facilities
Subpart R	National Emission Standards for Radon Emissions from Phosphogypsum Stacks
Subpart T	National Emission Standards for Radon Emissions from the Disposal of Uranium Mill Failings
Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)
Subpart W	National Emission Standards for Radon Emissions from Operating Mill Failings
Subpart Y	National Emission Standards for Benzene Emissions from Benzene Storage Vessels
Subpart BB	National Emission Standards for Benzene Emissions from Benzene Transfer Operations
Subpart FF	National Emission Standards for Benzene Waste Operations

APPENDIX D

Air Emission Standards

REGULATORY SCHEDULE January 1997		
MACT STANDARD	**Proposal**	**Final**
Asbestos Litigation	1/1/93[a]	6/15/94[a]
Ferroalloys	3/97	3/98
Flexible Polyurethane Foam	12/9/96[a]	9/97
Gasoline Distribution	12/8/95[a]	1/97
Haz. Waste Inc.	4/19/96[a]	4/97
Mineral Wool	3/97	12/97
Off-site Waste & Recovery	10/13/94[a]	7/1/96[a]
Oil & Gas Production	3/97	9/97
Pharmaceutical Production	1/97	4/98
Polymers & Resins I	6/12/95[a]	9/12/96[a]
Polymers & Resins III	2/97	11/97
Polymers & Resins IV	3/15/95[a]	8/29/96[a]
Portland Cement	5/97	1/98
Primary Aluminum Prod.	8/29/96[a]	9/97
Primary Copper Smelting	4/97	11/97
Printing/Publishing	3/1/95[a]	5/17/96[a]
Pulp & Paper (combustion)	2/27/95[a]	8/97
Pulp & Paper (non-comb.)	10/29/95[a]	5/97
Secondary Aluminum Prod.	4/97	11/97
Steel Pickling-HCl Process	2/97	12/97
Wool Fiberglass Mfg.	5/97	2/98
CTG[b]	**Proposal**	**Final**
Aerospace Coatings	10/8/96[a]	4/97
Industrial Wastewater	12/29/93[a]	[c]
Shipbuilding (coating)	12/6/94[a]	8/27/96[s]
Offset Lithography	11/93[a]	[c]
Plastic Parts Coating	[c]	[c]
VOL Storage	12/93[a]	[c]
Wood Furniture Coating	9/7/95[a]	5/00
ACT	**Proposal**	**Final**
Plywood/Particle Board (PM10)		Schedule Under Dev.
Asbestos Processing Delisting	1/24/95[a]	11/30/95[a]
NSPS	**Proposal**	**Final**
Cold Cleaning	Withdrew	10/18/96[a]
Degreaser NSPS	8/31/94[a]	On Hold
Elec. Utility Gen. Rev. (NOx)	5/30/94[a]	7/97
Med. Waste Inc. NSPS & 111 (d)	2/27/95[a]	6/17/96[a]
NOx NSPS Revision (407(c))	11/31/95[a]	7/97
SOCMI Sec. Sources Suppl.	10/11/95[a]	12/97
Starch Mfg. Industry NSPS	8/31/94[a]	On Hold

REGULATORY SCHEDULE January 1997		
OTHER RULES	**Proposal**	**Final**
Arch./Ind. Coatings ('183e)	6/25/96[a]	1/98
Auto Refinishing ('183e)	4/30/96[a]	4/97
Household Consumer Products	3/26/96[a]	3/97
Haz. Waste TSDF, Phase II (RCRA)	7/22/91[a]	12/6/94[a]
Haz. Waste TSDF, Phase III (RCRA)	Schedule under revision	

Source: EPA Home Page.

NOTE:

[a] Indicates date completed.

[b] ACTs were issued for most CTG categories in April 1995.

[c] Final CTG cancelled or no plans to finalize.

APPENDIX E

Federal Regulatory References

FEDERAL REGULATIONS CITED

CITATION	TITLE
10 CFR 30-72	Licensing of Radioactive Materials
29 CFR 1926	Safety and Health Regulations for Construction
40 CFR 60	Standards of Performance for New Stationary Sources
40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 112	Oil Pollution Prevention
40 CFR 122	National Pollutant Discharge Elimination System
40 CFR 141	National Primary Drinking Water Regulations
40 CFR 144	Underground Injection Control Program
40 CFR 145	State UIC Program Requirements
40 CFR 165	Pesticides
40 CFR 258	Criteria for Municipal Solid Waste Landfills
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Wastes
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities
40 CFR 279	Standards for the Management of Used Oil
40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of USTs
40 CFR 401	General Provisions
40 CFR 403	General Pretreatment Regulations for Existing and New Sources of Pollution

40 CFR 413	Electroplating Point Source Category
40 CFR 433	Metal Finishing Point Source Category
40 CFR 459	Photographic Point Source Category
40 CFR 460	Hospital Point Source Category
40 CFR 503	Standards for the Use or Disposal of Sewage Sludge

CITATION	TITLE
40 CFR 761	PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
40 CFR 763	Asbestos
50 CFR 21	Wildlife and Fisheries
50 CFR 81	Conservation of Endangered and Threatened Species of Fish, Wildlife, and Plants

FEDERAL LAWS CITED

Clean Water Act (CWA)	Section 401	Certification
Clean Water Act (CWA)	Section 404	Permits for Dredge and Fill Material
Rivers and Harbors Act of 1989	Section 10	Obstruction of Excavations and Filling in of Navigable Waters
Clean Air Act (CAA)	Title I	Air Pollution Prevention and Control
Clean Air Act (CAA)	Title VI	Stratospheric Ozone Protection
Endangered Species Act	Section 10	Exceptions
Marine Mammal Protection Act	Section 104	Permits

APPENDIX F

Other Regulatory References

County

Clark County Air Quality Regulations (includes regulations on NESHAP, Asbestos, boilers and steam generators, fuel burning equipment, and testing/monitoring

Construction Activities Dust Control Handbook, Clark County Department of Air Quality and Environmental Management

State

CITATION	TITLE
NAC 444	Sanitation
NAC 444A	Programs for recycling
NAC 445A	Water Controls
NAC 445B	Air Pollution
NAC 459	Hazardous Materials
NAC 555	Control of Insects, Pests, and Noxious Weeds
NAC 590	Petroleum Products and Antifreeze
NAC 503	Hunting, Fishing, and Trapping; Miscellaneous Protective Measures
NAC 618	Occupational Safety and Health

APPENDIX C

AIR QUALITY ANALYSIS AND NOISE CALCULATIONS

APPENDIX C
AIR QUALITY ANALYSIS AND NOISE CALCULATIONS

Air Quality Standards

As described in Section 3.2, Air Quality in a given location is described by the concentration of various pollutants in the atmosphere. The significance of the pollutant concentration is determined by comparing it to the federal and state ambient air quality standards. These standards (Table D-1) represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. The Nevada Department of Environmental Protection, Bureau of Air Quality has adopted the NAAQS, with the following exceptions and additions: 1) state annual SO_2 standard is more stringent than the national standard; 2) a new 8-hour CO standard specific to elevations greater than 5,000 feet above mean seal level; and 3) new standards for visibility. The state ambient air quality standards are also summarized in Table D-1.

The air quality analysis in this EA examined impacts from air emissions associated with the proposed action. As part of the analysis, emissions generated from construction and demolition activities (including truck and equipment emissions) were examined for carbon monoxide (CO), nitrogen oxides (NO_X), sulfur dioxide (SO_X), volatile organic compounds (VOCs), and particulate matter (PM_{10}). Currently, Clark County is in serious nonattainment for CO and PM_{10} ; in addition a portion of Clark County, the Las Vegas Valley in which Nellis AFB is found, is in basic (subpart 1) nonattainment for 8-hour Ozone (precursors of this pollutant include NO_x and VOCs) (DAQEM 2004). This means that at Nellis AFB (the only location found within the nonattainment areas) certain *de minimus* thresholds may not be exceeded in any given year. These thresholds are: CO (100 tons/year), PM10 (70 tons/year), and VOCs (100 tons/year). In summary, combined demolition and construction activities, for any new projects at Nellis AFB, in any one year, would need to do an air conformity analysis if these threshold levels were exceeded.

Because Nellis AFB has not determined the exact projects to be undertaken, the order in which they would occur, or when they would occur the exact emissions from any given project, during any year is impossible to calculate. Therefore, a more programmatic approach was developed to identify the amount of land disturbance that could occur at Nellis AFB, during one year, before *de minimus* levels were reached. To determine the amount of construction and demolition activities generating emissions that would meet the *de minimus* thresholds, the following factors were considered: for construction, contributions from engine exhaust emissions (i.e., construction equipment, material handling, and transportation) and fugitive dust emissions (e.g., from digging and grading activities). Demolition emissions evaluated include fugitive dust and transport of demolition debris offsite. Paving emissions include combustive emissions from bulldozers, rollers, and paving equipment, plus emissions from dump

Table D-1 State and National Ambient Air Quality Standards

	Nevada Standards[A]		*National Standards*[B]	
	AVERAGING TIME	CONCENTRATION CENTER	PRIMARY CENTER[C,D]	SECONDARY CENTER[C,E]
Ozone	1 Hour	235 µg/m³ (0.12 ppm)	235 µg/m³ (0.12 ppm)	Same as Primary
Ozone	8 Hours		157 µg/m³ 0.08 ppm	Same as Primary
Carbon Monoxide less than 5,000 ft above MSL	8 Hours	10 mg/m³ (9.0 ppm)	10 mg/m³ (9.0 ppm)	None
Carbon Monoxide at any elevation	1 Hour	40 mg/m³ (35 ppm)	40 mg/m³ (35 ppm)	
Nitrogen Dioxide	Annual Arithmetic Mean	100 µg/m³ (0.05 ppm)	100 µg/m³ (0.05 ppm)	Same as Primary
Sulfur Dioxide	Annual Arithmetic Mean	80 µg/m³ (0.03 ppm)	80 µg/m³ (0.03 ppm)	None
	24 Hours	365 µg/m³ (0.14 ppm)	365 µg/m³ (0.14 ppm)	
	3 Hours	1,300 µg/m³ (0.5 ppm)	None	1,300 g/m3 (0.5 ppm)
Particulate Matter as PM_{10}	Annual Arithmetic Mean	50 µg/m³	50 µg/m³	Same as Primary
	24 Hours	150 µg/m³	150 µg/m³	
Particulate Matter[F] as $PM_{2.5}$	Annual		15 µg/m³	Same as Primary
	24 Hours		65 µg/m³	---
Lead (Pb)	Quarterly Arithmetic Mean	1.5 µg/m³	1.5 µg/m³	Same as Primary
Visibility	Observation	In sufficient amount to reduce the prevailing visibility to less than 30 miles when humidity is less than 70%	--	--

Notes:(a) 235 µg/m³" means micrograms per cubic meter. 3, (b) "ppm" means part per million by volume.
Note A: These standards must not be exceeded in areas where the general public has access.
Note B: These standards, other than for ozone and those based on annual averages, must not be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with a maximum hourly average concentration above the standard is equal to or less than one.
Note C: Concentration is expressed first in units in which it was adopted and is based upon a reference temperature of 25° C and a reference pressure of 760 mm of mercury. All measurements of air quality must be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of Hg (1,013.2 millibars); ppm in this table refers to ppm by volume, or micromoles of regulated air pollutant per mole of gas.
Note D: National primary standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.
Note E: National secondary standards are the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a regulated air pollutant.
Note F: Final regulatory procedures were announced in 2004, the entire state of Nevada is in attainment for this criteria pollutant. However, all air emissions inventory for 2003 do not include calculation of this criteria pollutant since no ruling had been reached.

trucks hauling pavement materials to the various sites. The following worksheets were developed to estimate emissions from two scenarios:

Scenario 1: demolition of 1 acre of land, this included materials associated with a 2,000 square foot, 2-story concrete building, debris removal, and site preparation; the construction portion of the scenario involved 3 acres that included a 30,000 square-foot concrete, maintenance shop with a 100,000 square-foot parking area;

Scenario 2: combined demolition and construction acreage was increased to 14.5; the construction and demolition equipment, number of equipment, and days undertaking the activity were proportionately increased to accommodate this increased acreage.

The emissions factors and assumptions are provided in the following worksheets. In conclusion, Nellis AFB will use this worksheet to estimate the potential emissions from projects at the base, during a given year in order to remain below *de minimus* levels.

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SCENARIO:	*Demolition*	*Construction*	
	1 acre(s) demolition footprint	1 equals	3 acres construction footprint

Cell E3 has been set up so that 1=3 acres, 2=6 acres, etc.

Task 1: ***Demolition of 2,000 sf footprint concrete building (2 stories)***

Building demolition

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Dozer	2	8	4	90	0.59	0.99	3.49	6.9	0.93	0.722	7.42	26.15	51.70	6.97	5.41
Tier 1	Skid steer loader	2	8	4	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1.13	5.14	12.17	2.02	1.03
Tier 0	Truck crane	1	8	2	275	0.21	0.68	2.7	8.38	0.89	0.402	1.39	5.50	17.07	1.81	0.82
Tier 0	Excavator	1	8	4	169	0.21	0.68	2.7	8.38	0.89	0.402	1.70	6.76	20.98	2.23	1.01
											Subtotal	11.64	43.55	101.92	13.03	8.26

Demo debris removal

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Backhoe/loader	2	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	3.59	12.67	25.04	3.09	2.62
Tier 1	Skid steer loader	2	8	5	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1.42	6.43	15.22	2.53	1.29
Tier 0	Dump truck (20 CY)	8	2	5	275	0.21	0.68	2.7	8.38	0.89	0.402	6.93	27.50	85.35	9.07	4.09
											Subtotal	11.94	46.60	125.62	14.68	8.00

Site prep (grading, seeding)

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Dozer	1	8	1	90	0.59	0.99	3.49	6.9	0.93	0.722	0.93	3.27	6.46	0.87	0.68
Tier 0	Grader	1	6	1	150	0.59	0.68	2.7	8.38	0.93	0.402	0.80	3.16	9.81	1.09	0.47
Tier 0	Dump truck (20 CY)	4	1	1	275	0.21	0.68	2.7	8.38	0.89	0.402	0.35	1.38	4.27	0.45	0.20
											Subtotal	2.07	7.80	20.54	2.41	1.35
Tier 0	Small diesel engines	3	8	6	25	0.43	1.7	5	8.5	0.93	0.9	5.80	17.06	29.01	3.17	3.07
											Total	31.45	115.02	277.09	33.30	20.69

Task 2: ***Demolition of 50,000 sf parking area (inc. guttering)*** ***Assume stockpiling of asphalt and base materials for re-use (new parking lot within the 5-acre perimeter)***

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Excavator	1	8	2	169	0.21	0.68	2.7	8.38	0.89	0.402	0.85	3.38	10.49	1.11	0.50
Tier 1	Skid steer loader	2	8	5	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1.42	6.43	15.22	2.53	1.29
Tier 0	Backhoe/loader	2	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	3.59	12.67	25.04	3.09	2.62
Tier 0	Small diesel engines	3	8	7	25	0.43	1.7	5	8.5	0.93	0.9	6.77	19.91	33.84	3.70	3.58
Tier 0	Cold planer	1	8	3	275	0.21	0.99	3.49	6.9	0.85	0.722	3.03	10.66	21.08	2.60	2.21
Tier 0	Dump truck (20 CY)	3	8	3	275	0.21	0.68	2.7	8.38	0.89	0.402	6.23	24.75	76.82	8.16	3.69
											Total	21.89	77.80	182.50	21.19	13.88

Task 3: ***Construct 30,000 sf aircraft concrete maintenance shop***

Foundation (slab)

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 1	Skid steer loader	2	2	14	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0.99	4.50	10.65	1.77	0.90
Tier 0	Concrete truck	4	4	9	250	0.21	0.68	2.7	8.38	0.89	0.402	11.33	45.00	139.67	14.83	6.70
Tier 0	Dump truck	6	6	9	275	0.21	0.68	2.7	8.38	0.89	0.402	28.05	111.38	345.68	36.71	16.58
Tier 0	Delivery truck	1	1	30	180	0.21	0.68	2.7	8.38	0.89	0.402	1.70	6.75	20.95	2.23	1.01
Tier 0	Backhoe/loader	1	8	4	98	0.21	0.99	3.49	6.9	0.85	0.722	1.44	5.07	10.02	1.23	1.05
Tier 1	Small generator	2	2	53	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1.53	8.27	10.51	1.87	407.85
											Subtotal	45.05	180.96	537.48	58.64	434.09

Structure

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 1	Small generator	2	4	16	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0.93	4.99	6.35	1.13	0.54
Tier 0	Delivery truck	1	2	19	180	0.21	0.68	2.7	8.38	0.89	0.402	2.15	8.55	26.54	2.82	1.27
Tier 1	Skid steer loader	2	4	62	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	8.78	39.86	94.34	15.67	7.97
Tier 0	Concrete truck	4	4	6	250	0.21	0.68	2.7	8.38	0.89	0.402	7.56	30.00	93.11	9.89	4.47
Tier 1	Crane	1	8	6	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1.85	4.73	30.86	5.08	1.53
											Subtotal	21	88	251	35	16
Tier 0	Small diesel engines	3	6	60	25	0.43	1.7	5	8.5	0.93	0.9	43.51	127.98	217.56	23.80	23.04
											Total	110	397	1008	117	473

Task 4: ***Construct 100,000 sf parking area*** ***(including associated guttering and sidewalks)***

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Grader	1	4	3	150	0.59	0.68	2.7	8.38	0.93	0.402	1.59	6.32	19.62	2.18	0.94
Tier 0	Roller	2	4	3	30	0.59	1.8	5	6.9	1	0.8	1.69	4.68	6.46	0.94	0.75
Tier 0	Paver	1	8	3	107	0.59	0.68	2.7	8.38	0.93	0.402	2.27	9.02	27.99	3.11	1.34
Tier 0	Concrete truck	4	3	15	250	0.21	0.68	2.7	8.38	0.89	0.402	14.17	56.25	174.59	18.54	8.38
Tier 0	Delivery truck	1	2	15	180	0.21	0.68	2.7	8.38	0.89	0.402	1.70	6.75	20.95	2.23	1.01
Tier 0	Small diesel engines	4	6	30	25	0.43	1.7	5	8.5	0.93	0.9	29.01	85.32	145.04	15.87	15.36
											Total	50.42	168.34	394.65	42.86	27.77

	PM10 tons/acre/mo	acres	days of disturbance	controls reduction	Uncontrolled Total	Controlled Total
Fugitive Dust Emissions (TSP)	1.2	3.00	106	75%	12.72	3.18

	VOCs	CO	NOx	SOx	PM10
Grand Total in Pounds per Year	214	758	1860	214	6895
Grand Total in Tons per Year	0.11	0.38	0.93	0.11	3.45
Nonattainment THRESHOLDS	*100 tons/yr*	*100 tons/yr*	*NA*	*NA*	*70 tons/yr*

Assumptions:

For scenario 1, construction occurs including areas demolished
VOCs = total hydrocarbons, assume 1:1 relationship for hydrocarbons and VOCs
Commute traffic excluded as indirect emission, no program control
Emission factor for Total Suspended Particulate (TSP) conservatively used for onsite construction activities and for PM10.
Control activities such as wetting of soils in construction areas and ingress/egress points result in 75% reduction of airborne particulate matter.

References:

Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling—Compression-Ignition , EPA Report No. NR-009c, April 2004.
Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling , EPA Report No. NR-005c, April 2004.
Conversion Factors for Hydrocarbon Emission Components, EPA 420-P-04-001, NR-002b, April 2004.
Nonroad Engine and Vehicle Emission Study--Report , EPA 460/3-91-02, November 1991.
Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Chapter 13, ***Miscellaneous Sources***, Section 13.2.3, *Heavy Construction Operations*, January 1995

Nellis WINDO

SCENARIO:	*Demolition*	*Construction*	
	[redacted] acre(s) demolition footprint	4.69 equals	14.07 acres construction footprint

Cell E3 has been set up so that 1=3 acres, 2=6 acres, etc. with the total acres found in cell G3

Task 1: ***Demolition of 6,000 sf footprint concrete building (4 stories)***

Building demolition

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Dozer	4	8	8	90	0.59	0.99	3.49	6.9	0.93	0.722	29.67	104.59	206.79	27.87	21.64
Tier 1	Skid steer loader	4	8	8	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4.53	20.57	48.69	8.09	4.11
Tier 0	Truck crane	2	8	4	275	0.21	0.68	2.7	8.38	0.89	0.402	5.54	22.00	68.28	7.25	3.28
Tier 0	Excavator	1	8	8	169	0.21	0.68	2.7	8.38	0.89	0.402	3.41	13.52	41.96	4.46	2.01
											Subtotal	43.15	160.69	365.73	47.67	31.04

Demo debris removal

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Backhoe/loader	4	8	10	98	0.21	0.99	3.49	6.9	0.85	0.722	14.37	50.67	100.18	12.34	10.48
Tier 1	Skid steer loader	4	8	10	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	5.67	25.72	60.87	10.11	5.14
Tier 0	Dump truck (20 CY)	16	2	10	275	0.21	0.68	2.7	8.38	0.89	0.402	27.70	110.00	341.41	36.26	16.38
											Subtotal	47.75	186.39	502.46	58.71	32.00

Site prep (grading, seeding)

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Dozer	5	8	5	90	0.59	0.99	3.49	6.9	0.93	0.722	20.39	71.89	142.14	19.16	14.87
Tier 0	Grader	5	6	5	150	0.59	0.68	2.7	8.38	0.93	0.402	17.51	69.52	215.78	23.95	10.35
Tier 0	Dump truck (20 CY)	19	1	5	275	0.21	0.68	2.7	8.38	0.89	0.402	7.62	30.25	93.87	9.97	4.50
											Subtotal	45.52	171.66	451.80	53.08	29.73
Tier 0	Small diesel engines	14	8	28	25	0.43	1.7	5	8.5	0.93	0.9	127.62	375.34	638.08	69.81	67.56
											Total	264.03	894.08	1958.06	229.27	160.33

Task 2: ***Demolition of 81,000 sf parking area (inc. guttering)*** ***Assume stockpiling of asphalt and base materials for re-use (new parking lot within the 5-acre perimeter)***

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Excavator	2	8	4	169	0.21	0.68	2.7	8.38	0.89	0.402	3.41	13.52	41.96	4.46	2.01
Tier 1	Skid steer loader	4	8	10	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	5.67	25.72	60.87	10.11	5.14
Tier 0	Backhoe/loader	4	8	10	98	0.21	0.99	3.49	6.9	0.85	0.722	14.37	50.67	100.18	12.34	10.48
Tier 0	Small diesel engines	6	8	14	25	0.43	1.7	5	8.5	0.93	0.9	27.07	79.63	135.37	14.81	14.33
Tier 0	Cold planer	2	8	6	275	0.21	0.99	3.49	6.9	0.85	0.722	12.10	42.66	84.34	10.39	8.82
Tier 0	Dump truck (20 CY)	6	8	6	275	0.21	0.68	2.7	8.38	0.89	0.402	24.93	99.00	307.27	32.63	14.74
											Total	87.55	311.20	729.99	84.74	55.54

Task 3: ***Construct 200,000 sf aircraft hangar***

Foundation (slab)

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 1	Skid steer loader	9	2	66	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	21.82	98.99	234.30	38.92	19.79
Tier 0	Concrete truck	19	4	42	250	0.21	0.68	2.7	8.38	0.89	0.402	249.29	989.85	3072.19	326.28	147.38
Tier 0	Dump truck	28	6	42	275	0.21	0.68	2.7	8.38	0.89	0.402	617.00	2449.87	7603.67	807.55	364.76
Tier 0	Delivery truck	5	1	141	180	0.21	0.68	2.7	8.38	0.89	0.402	37.39	148.48	460.83	48.94	22.11
Tier 0	Backhoe/loader	5	8	19	98	0.21	0.99	3.49	6.9	0.85	0.722	31.62	111.46	220.36	27.15	23.06
Tier 1	Small generator	9	2	249	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	33.72	181.81	231.19	41.11	8971.11
											Subtotal	990.85	3980.45	11822.53	1289.95	9548.20

Structure

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 1	Small generator	9	4	75	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	20.36	109.77	139.59	24.82	11.94
Tier 0	Delivery truck	5	2	89	180	0.21	0.68	2.7	8.38	0.89	0.402	47.37	188.07	583.72	61.99	28.00
Tier 1	Skid steer loader	9	4	291	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	193.22	876.78	2075.21	344.71	175.32
Tier 0	Concrete truck	19	4	28	250	0.21	0.68	2.7	8.38	0.89	0.402	166.20	659.90	2048.13	217.52	98.25
Tier 1	Crane	5	8	28	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	40.64	104.10	678.89	111.70	33.62
											Subtotal	468	1939	5526	761	347
Tier 0	Small diesel engines	14	6	281	25	0.43	1.7	5	8.5	0.93	0.9	957.11	2815.04	4785.57	523.60	506.71
											Total	2416	8734	22134	2574	10402

Task 4: ***Construct 412,500 sf apron, flightline, and parking area*** ***(including associated guttering and sidewalks)***

	Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Grader	5	4	14	150	0.59	0.68	2.7	8.38	0.93	0.402	35.02	139.05	431.57	47.89	20.70
Tier 0	Roller	9	4	14	30	0.59	1.8	5	6.9	1	0.8	37.08	103.00	142.14	20.60	16.48
Tier 0	Paver	5	8	14	107	0.59	0.68	2.7	8.38	0.93	0.402	49.96	198.38	615.71	68.33	29.54
Tier 0	Concrete truck	19	3	70	250	0.21	0.68	2.7	8.38	0.89	0.402	311.62	1237.31	3840.24	407.85	184.22
Tier 0	Delivery truck	5	2	70	180	0.21	0.68	2.7	8.38	0.89	0.402	37.39	148.48	460.83	48.94	22.11
Tier 0	Small diesel engines	19	6	141	25	0.43	1.7	5	8.5	0.93	0.9	638.08	1876.69	3190.38	349.06	337.80
											Total	1109.15	3702.91	8680.86	942.69	610.85

	PM10 tons/acre/mo	acres	days of disturbance	controls reduction	Uncontrolled Total	Controlled Total
Fugitive Dust Emissions (TSP)	1.2	14.07	459.48	75%	258.60	64.65

	VOCs	CO	NOx	SOx	PM10
Grand Total in Pounds per Year	3876	13642	33503	3831	140526
Grand Total in Tons per Year	1.94	6.82	16.75	1.92	70.26
Nonattainment THRESHOLDS	*100 tons/yr*	*100 tons/yr*	*NA*	*NA*	*70 tons/yr*

Assumptions:

For scenario 1, construction occurs including areas demolished
VOCs = total hydrocarbons, assume 1:1 relationship for hydrocarbons and VOCs
Commute traffic excluded as indirect emission, no program control
Emission factor for Total Suspended Particulate (TSP) conservatively used for onsite construction activities and for PM10.
Control activities such as wetting of soils in construction areas and ingress/egress points result in 75% reduction of airborne particulate matter.

References:

Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling—Compression-Ignition, EPA Report No. NR-009c, April 2004.
Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling, EPA Report No. NR-005c, April 2004.
Conversion Factors for Hydrocarbon Emission Components, EPA 420-P-04-001, NR-002b, April 2004.
Nonroad Engine and Vehicle Emission Study–Report, EPA 460/3-91-02, November 1991
Compilation of Air Pollutant Emission Factors, Volume 1 Stationary Point and Area Sources, Chapter 13, ***Miscellaneous Sources***, Section 13.2.3, *Heavy Construction Operations*, January 1995

Nellis WINDO

SCENARIO:	*Demolition*	*Construction*	
	1 acre(s) demolition footprint	1 equals	3 acres construction footprint

Cell E3 has been set up so that 1=3 acres, 2=6 acres, etc.

Task 1: ***Demolition of 2,000 sf footprint concrete building (2 stories)***

Building demolition

	Equipment	*Number*	*Hr/day*	*# days*	*Power BHP*	*Power Kilowatts*	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Dozer	2	8	4	90	66	105	68	63	53	48	44	41	39	38
Tier 1	Skid steer loader	2	8	4	67	49	104	66	62	51	47	42	40	38	36
Tier 0	Truck crane	1	8	2	275	202	110	67	62	52	47	43	40	38	37
Tier 0	Excavator	1	8	4	169	124	108	68	63	53	48	44	41	39	38
					Overall Level Day-Night Average Ldn, dBA			73	69	58	54	49	47	45	43
					Estimated Construction Period		5								

Demo debris removal

	Equipment	*Number*	*Hr/day*	*# days*	*Power BHP*	*Power Kilowatts*	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Backhoe/loader	2	8	5	98	72	105	69	65	54	50	45	42	40	39
Tier 1	Skid steer loader	2	8	5	67	49	104	67	63	52	48	43	41	39	37
Tier 0	Dump truck (20 CY)	8	2	5	275	202	110	74	69	59	54	50	47	45	44
					Overall Level Day-Night Average Ldn, dBA			76	71	61	56	52	49	47	46
					Estimated Construction Period		5								

Site prep (grading, seeding)

	Equipment	*Number*	*Hr/day*	*# days*	*Power BHP*	*Power Kilowatts*	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Dozer	1	8	1	90	66	105	58	53	43	38	34	31	29	28
Tier 0	Grader	1	6	1	150	110	107	59	54	44	39	35	32	30	29
Tier 0	Dump truck (20 CY)	4	1	1	275	202	110	60	56	45	41	36	33	32	30
Tier 0	Small diesel engines	3	8	6	25	18	104	69	65	54	50	45	43	41	39
					Overall Level Day-Night Average Ldn, dBA			70	66	55	51	46	44	42	40
					Estimated Construction Period		6								

Task 2: ***Demolition of 50,000 sf parking area (inc. guttering)*** ***Assume stockpiling of asphalt and base materials for re-use (new parking lot within the 5-acre perimeter)***

	Equipment	*Number*	*Hr/day*	*# days*	*Power BHP*	*Power Kilowatts*	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Excavator	1	8	2	169	124	108	62	57	47	42	38	35	33	32
Tier 1	Skid steer loader	2	8	5	67	49	104	64	60	49	45	40	38	36	34
Tier 0	Backhoe/loader	2	8	5	98	72	105	66	61	51	46	42	39	37	36
Tier 0	Small diesel engines	3	8	7	25	18	104	68	63	53	48	44	41	39	38
Tier 0	Cold planer	1	8	3	275	202	110	66	61	51	46	42	39	37	36
Tier 0	Dump truck (20 CY)	3	8	3	275	202	110	70	66	55	51	46	44	42	40
					Overall Level Day-Night Average Ldn, dBA			75	70	60	55	51	48	46	45
					Estimated Construction Period		10								

Task 3: ***Construct 30,000 sf aircraft concrete maintenance shop***

Foundation (slab)

	Equipment	*Number*	*Hr/day*	*# days*	*Power BHP*	*Power Kilowatts*	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 1	Skid steer loader	2	2	14	67	49	104	58	53	43	38	34	31	29	28
Tier 0	Concrete truck	4	4	9	250	184	110	68	64	53	49	44	42	40	38
Tier 0	Dump truck	6	6	9	275	202	110	72	68	57	53	48	46	44	42
Tier 0	Delivery truck	1	1	30	180	132	108	60	55	45	40	36	33	31	30
Tier 0	Backhoe/loader	1	8	4	98	72	105	57	53	42	38	33	31	29	27
Tier 1	Small generator	2	2	53	10	7	104	64	60	49	45	40	37	35	34
					Overall Level Day-Night Average Ldn, dBA			74	70	59	55	50	48	46	44
					Estimated Construction Period		30								

Structure

	Equipment	*Number*	*Hr/day*	*# days*	*Power BHP*	*Power Kilowatts*	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 1	Small generator	2	4	16	10	7	104	58	54	43	39	34	31	30	28
Tier 0	Delivery truck	1	2	19	180	132	108	57	53	42	38	33	31	29	27
Tier 1	Skid steer loader	2	4	62	67	49	104	64	59	49	44	40	37	35	34
Tier 0	Concrete truck	4	4	6	250	184	110	63	58	48	43	39	36	34	33
Tier 1	Crane	1	8	6	120	88	106	56	52	41	37	32	30	28	26
Tier 0	Small diesel engines	3	6	60	25	18	104	67	63	52	48	43	41	39	37
					Overall Level Day-Night Average Ldn, dBA			71	66	56	51	47	44	42	41
					Estimated Construction Period		70								

Task 4: ***Construct 100,000 sf parking area*** ***(including associated guttering and sidewalks)***

	Equipment	*Number*	*Hr/day*	*# days*	*Power BHP*	*Power Kilowatts*	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Grader	1	4	3	150	110	107	52	48	37	33	28	25	23	22
Tier 0	Roller	2	4	3	30	22	100	47	43	32	28	23	21	19	17
Tier 0	Paver	1	8	3	107	79	106	53	49	38	34	29	27	25	23
Tier 0	Concrete truck	4	3	15	250	184	110	66	62	51	47	42	40	38	36
Tier 0	Delivery truck	1	2	15	180	132	108	57	52	42	37	33	30	28	27
Tier 0	Small diesel engines	4	6	30	25	18	99	61	57	46	42	37	35	33	31
					Overall Level Day-Night Average Ldn, dBA			68	64	53	49	44	41	40	38
					Estimated Construction Period		60								

Assumptions:
Ldn based on daily average integrated over the estimated period of construction.
No night-time operations
Source levels based on the outdoor noise rirective for construction equipment

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SCENARIO:	Demolition	Construction
	2 acre(s) demolition footprint	4.69 equals 14.07 acres construction footprint

Cell E3 has been set up so that 1=3 acres, 2=6 acres, etc. with the total acres found in cell G3

Task 1: ***Demolition of 6,000 sf footprint concrete building (4 stories)***

Building demolition

	Equipment	Number	Hr/day	# days	Power BHP	Power Kilowatts	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Dozer	4	8	8	90	66	105	71	66	56	51	47	44	42	41
Tier 1	Skid steer loader	4	8	8	67	49	104	69	65	54	50	45	43	41	39
Tier 0	Truck crane	2	8	4	275	202	110	70	65	55	50	46	43	41	40
Tier 0	Excavator	1	8	8	169	124	108	68	63	53	48	44	41	39	38
					Overall Level Day-Night Average Ldn, dBA			76	71	61	56	52	49	47	46
					Estimated Construction Period		10								

Demo debris removal

	Equipment	Number	Hr/day	# days	Power BHP	Power Kilowatts	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Backhoe/loader	4	8	10	98	72	105	72	68	57	53	48	45	43	42
Tier 1	Skid steer loader	4	8	10	67	49	104	70	66	55	51	46	44	42	40
Tier 0	Dump truck (20 CY)	16	2	10	275	202	110	77	72	62	57	53	50	48	47
					Overall Level Day-Night Average Ldn, dBA			79	74	64	59	55	52	50	49
					Estimated Construction Period		10								

Site prep (grading, seeding)

	Equipment	Number	Hr/day	# days	Power BHP	Power Kilowatts	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Dozer	5	8	5	90	66	105	64	60	49	45	40	38	36	34
Tier 0	Grader	5	6	5	150	110	107	65	61	50	46	41	39	37	35
Tier 0	Dump truck (20 CY)	19	1	5	275	202	110	67	62	52	47	43	40	38	37
Tier 0	Small diesel engines	14	8	28	25	0	104	76	71	61	56	52	49	47	46
					Overall Level Day-Night Average Ldn, dBA			77	72	62	57	53	50	48	47
					Estimated Construction Period		30								

Task 2: ***Demolition of 81,000 sf parking area (inc. guttering)*** ***Assume stockpiling of asphalt and base materials for re-use (new parking lot within the 5-acre perimeter)***

	Equipment	Number	Hr/day	# days	Power BHP	Power Kilowatts	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Excavator	2	8	4	169	124	108	66	61	51	46	42	39	37	36
Tier 1	Skid steer loader	4	8	10	67	49	104	68	64	53	49	44	42	40	38
Tier 0	Backhoe/loader	4	8	10	98	72	105	70	66	55	51	46	44	42	40
Tier 0	Small diesel engines	6	8	14	25	18	99	67	62	52	47	43	40	38	37
Tier 0	Cold planer	2	8	6	275	202	110	70	65	55	50	46	43	41	40
Tier 0	Dump truck (20 CY)	6	8	6	275	202	110	75	70	60	55	51	48	46	45
					Overall Level Day-Night Average Ldn, dBA			78	74	63	59	54	52	50	48
					Estimated Construction Period		15								

Task 3: ***Construct 200,000 sf aircraft hangar***

Foundation (slab)

	Equipment	Number	Hr/day	# days	Power BHP	Power Kilowatts	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 1	Skid steer loader	9	2	66	67	49	104	62	58	47	43	38	35	34	32
Tier 0	Concrete truck	19	4	42	250	184	110	72	68	57	53	48	46	44	42
Tier 0	Dump truck	28	6	42	275	202	110	76	72	61	57	52	50	48	46
Tier 0	Delivery truck	5	1	141	180	132	108	64	60	49	45	40	37	36	34
Tier 0	Backhoe/loader	5	8	19	98	72	105	61	57	46	42	37	35	33	31
Tier 1	Small generator	9	2	249	10	7	104	68	64	53	49	44	42	40	38
					Overall Level Day-Night Average Ldn, dBA			79	74	64	59	55	52	50	49
					Estimated Construction Period		250								

Structure

	Equipment	Number	Hr/day	# days	Power BHP	Power Kilowatts	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 1	Small generator	9	4	75	10	7	95	56	51	41	36	32	29	27	26
Tier 0	Delivery truck	5	2	89	180	132	108	64	60	49	45	40	38	36	34
Tier 1	Skid steer loader	9	4	291	67	49	104	71	66	56	51	47	44	42	41
Tier 0	Concrete truck	19	4	28	250	184	110	70	65	55	50	46	43	41	40
Tier 1	Crane	5	8	28	120	88	106	63	59	48	44	39	37	35	33
Tier 0	Small diesel engines	14	6	281	25	18	104	75	70	60	55	51	48	46	45
					Overall Level Day-Night Average Ldn, dBA			77	73	62	58	53	51	49	47
					Estimated Construction Period		300								

Task 4: ***Construct 412,500 sf apron, flightline, and parking area*** ***(including associated guttering and sidewalks)***

	Equipment	Number	Hr/day	# days	Power BHP	Power Kilowatts	Sound Power dBA	Distance in feet from source: 50	100	500	1000	2000	3000	4000	5000
Tier 0	Grader	5	4	14	150	110	107	61	57	46	42	37	35	33	31
Tier 0	Roller	9	4	14	30	22	100	57	52	42	37	33	30	28	27
Tier 0	Paver	5	8	14	107	79	106	63	58	48	43	39	36	34	33
Tier 0	Concrete truck	19	3	70	250	184	110	76	71	61	56	52	49	47	46
Tier 0	Delivery truck	5	2	70	180	132	108	66	62	51	47	42	40	38	36
Tier 0	Small diesel engines	19	6	141	25	18	104	76	71	61	56	52	49	47	46
					Overall Level Day-Night Average Ldn, dBA			79	75	64	60	55	53	51	49
					Estimated Construction Period		150								